

*American*

# FORESTS



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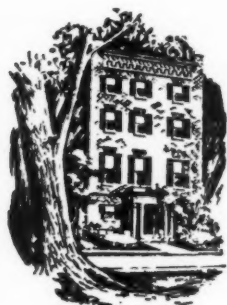
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The American Forestry Association, publishers of *American Forests*, is a national organization— independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

# American FORESTS

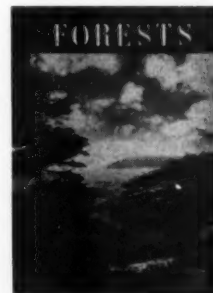
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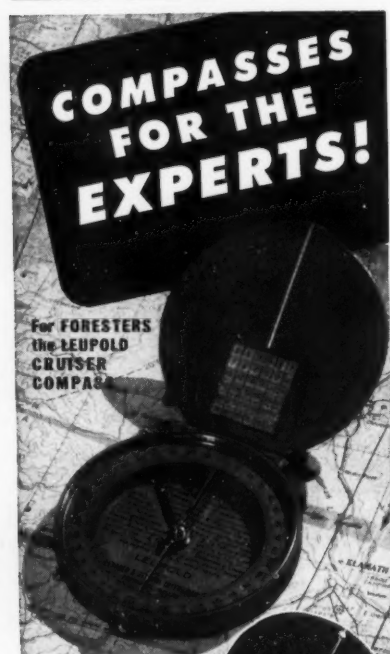
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**Cover . . . . .**

*Forests, rocks, sea and sky merge to produce the rugged and picturesque beauty so characteristic of the New England States. This photo by Harold M. Lambert shows a segment of the coast at Bar Harbor, Maine, in the heart of the great summer resort area which stretches along the Atlantic from Kittery Point to Eastport. Situated on Mount Desert Island and known as the gateway to Acadia National Park, Bar Harbor boasts the rocky shores and invigorating climate for which the entire coast is known. Inland, Maine and her sister states offer thousands of colorful streams, lakes and mountain retreats.*



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## American FORESTS

# Forum

**Looking Ahead**—Featuring our forthcoming special issue in October will be an eight-page digest of The American Forestry Association's *Report on Progress of Forestry, 1945-50*. Covering the significant half decade following World War II, the report is compiled from data gathered from all sections of the country and includes all phases of forestry as well as an evaluation of what lies ahead.

Also of special interest next month will be an article on *Wildlife as a Forest Crop* by **Arthur Carhart**, well-known author whose byline is familiar to *American Forests* readers. For the economy minded, and who isn't these days, there will be *Putting the Dollar Sign on Decay* by **H. B. Steer**, forest economist for the Department of Agriculture. He gives some tips on how to save \$200 million a year by using treated lumber and fence posts. *Rivers at Our Door*, by **Anthony Netboy** and **Bernard Frank**, who co-authored *Water, Land and People*, often quoted source book on our resources, will bring readers up to date on the causes and remedies for floods such as recently occurred in the Kansas-Missouri area.

**In This Issue**—Perhaps the latest campaign in the South's industrial revolution has been the bringing up to date of the once-creaky Naval Stores (turpentine and rosin) industry. The story of this revitalization is told by **Eugene F. Greneker, Jr.**, Valdosta, Georgia, in *Out of the Cracker Barrel* (page 6). Greneker, editor of the American Turpentine Farmers Association's *Journal*, points out that not until the 1930's did modern production and merchandising techniques begin to supplant the ancient methods that had kept this agricultural enterprise shackled to the past. Thanks to AT-FA guidance, he explains, the industry is now abreast of the times and booming as never before.

*Ailing Woodlots? Foundation Cures* (page 10) is an encouraging progress report on the "patients" being treated by the New England Forestry Foundation, a seven-year-old organization that is helping operators, especially smaller ones, show a profit. The Foundation offers its technical know-how at cost, the arti-

cle explains, and through strategically located operations centers makes the service available to any owner for the asking. **William H. Clark**, editor of *Forest and Park News*, organ of the Massachusetts Forest and Park Association, is the author.

The *Program for AFA's Annual Meeting* (page 13) will bring members up to date on the latest plans for the October 8, 9 and 10 gathering at Jefferson, New Hampshire. Dr. Carl A. Schenck will be the featured speaker.

**O. A. Fitzgerald**, Moscow, Idaho, public relations director of the University of Idaho, writes of the birth of cooperative forest protection in *Two Men and a Rock* (page 14). Forty-six years ago, he tells us, the now-universal program was launched atop a chunk of granite in the Gem state's Clearwater forest as two men sat helplessly watching fire ravage the timber.

*Your Shade Trees* (page 21) is the first in a series of articles on care of shade trees. The initial article advises you to *Know Your Tree Expert* and tells how to distinguish a quack from a professional tree doctor. Subsequent articles will deal with bracing, pruning, planting and other phases of proper care and treatment.

The important role of Indiana youth in fighting forest fires is the subject of **Norma L. Linton's** *Volunteer Forest Guards* (page 18). Writing from Bloomington, Indiana, she reviews the history of a unique project started during World War II to help alleviate the manpower shortage. The youths filled in so capably that now the recruitment of young volunteers has become a permanent feature of the Hoosier program.

How aerial forestry has really come into its own is told by **David Perlman** in *Flying Forester* (page 22). Taking California's Cal Ferris, a leader in the postwar development of this science, as an example, Perlman shows why the airplane is a tool of a thousand uses in conservation. Reconnaissance, supply, reseeding and fire fighting are a few of the uses cited by the author, a journalist and writer of wide reputation.

*Stone Faces of Goblin Gulch* (page 5)  
(Turn to page 5)



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# WASHINGTON LOOKOUT

By G. H. COLLINGWOOD

**During July**, the course of the rain-swollen Missouri and its tributaries as it flowed relentlessly over fertile fields and through prosperous cities, was reported in detail across the country. Public concern for the people of those states was focused upon Washington and criticism was rampant that this was allowed to happen in the United States. Then, and later as the waters began to subside, there were few to challenge charges that the federal government has a responsibility for preventing a recurrence of a similar catastrophe.

The arguments were a revival of those which have been going on for 30 years and more. Contributions to be made through engineering, scientific agriculture, and modern technology took second place in favor of questions as to what agency or agencies are best equipped to carry on the work; the cost; the means of providing the money, and specifically, what portion should be paid by the states, by the local communities, and the individual landowners—or should the entire cost be borne by the federal government?

The discussion was barely underway when President Truman led a group of "high brass" on a flight to look down on the waterlogged and drowned fields and cities of his home state. Upon his return to Washington he announced that Charles E. Wilson, Director of the Defense Mobilization Administration would assume charge of the region's restoration. Thus, the Missouri River flood assumed a place in the nation's economy comparable with that of national defense. Steel, cement, timbers, and other construction materials necessary to restore the normal activities of the Missouri Valley states were given priorities comparable to those same materials when needed for the defense program.

For once, it seemed that the delays which have held up enactment of the departmental appropriation bills could be used to advantage. The Army lost no time in requesting nearly 38 million dollars additional for its civil functions, with which to combat the floods in that area.

**The flood waters** were still high when Governor Val Peterson, of Nebraska, assembled the Missouri Val-

ley Governors Council, together with a number of invited guests, in Kansas City. The Council, which has responsibility for advising the engineers in the development of the Pick-Sloan plan, asked Major General Lewis A. Pick to report on progress in light of current events.

The General displayed the maps he had shown President Truman when the latter flew over the area a week earlier. With their aid he outlined the merged plan of the Corps of Army Engineers and the Bureau of Reclamation. This has been described as a flood control-navigation-irrigation-power plan put together to forestall President Roosevelt's efforts for a Missouri Valley Authority, and accepted by Congress in 1944.

With appropriations of some two and a half billion dollars, the work of building multi-purpose dams and levees, with their accompanying structures is now about 25 percent underway. It promised to provide flood protection for millions of acres in cities, towns and farms, to irrigate enough 80-acre farms to give homes and employment to over 250,000 people, to generate 13 billion kilowatt hours of electricity each year, and to dig a nine-foot channel in the Missouri River, for 750 miles from Sioux City to St. Louis.

But neither the plan nor its present stage of fulfillment has been without criticism from those who believe that many of the engineering structures could be reduced, were more attention given to better agriculture, forestry, and soil conservation practices on the up stream areas. General Pick recognized this in his address to the Council and said: "Flood control and soil conservation go hand in hand. One complements the other. Neither takes the place of the other. That has been accepted by technical people the world over."

**But the Pick-Sloan** plan soon found itself in competition for public attention. On July 23 Senator James E. Murray, of Montana, introduced a new version of an old bill to create a Missouri Valley Authority, as S. 1833. This became more arresting news on August 7, when an exchange of letters between the President and CIO President Philip Murray was published. The CIO leader declared

that "if a Missouri Valley Authority had been established a number of years ago, as the CIO advocated, the program would have sharply reduced the recent damages."

The President's reply expressed his long-time support of the principle included in a Valley Authority. "We ought to have a single agency," he said, "with its headquarters in the Basin where it is accessible to the people who are most directly affected, and where those people can have a direct part in working out the program. That agency should be given the responsibility for making a sensible over-all plan for coordinating upstream and downstream flood-control, navigation, irrigation, power and other programs in the Missouri Basin. Before you can expect any action of this sort," he warned, "there have to be more forward-looking liberal-minded members of Congress from these states."

Under the gathering pressures for action, the House Committee on Public Works invited Major General Pick to report to it. His description of July 31 revealed losses of life and property so appalling that most of the members of the committee took part in an inspection of the flooded area during the following week. Their conclusions may be of major importance. Even before they started, Representative George A. Dondero, of Michigan, introduced a bill to hasten completion of the Army Engineers' plans for flood-control in the Missouri Valley.

**On August 6**, Secretary of Agriculture, Charles F. Brannan spotlighted a broader program that would include protection of soil resources when he reminded the Missouri Farmers Association at Columbia, Missouri, that were an enemy to create such suffering the entire country would be stirred to immediate defense.

"The property loss in Kansas City alone," he said, "is comparable to the loss an atom bomb might cause. Yet this unruly river, year after year, on the main stream or its tributaries, takes its toll of property and sometimes of life. The greater part of this inadequately reported damage is done in upstream areas. Upstream damage isn't so spectacular. Yet year in and year out, actual flood losses probably run higher in those upstream areas than in the main streams."

Continuing his arguments in support of the Soil Conservation Service program, the Secretary declared "the first place to get hold of a flood is the place where the raindrop first touches the ground." Then he added,

"It is now known that that kind of farming also gets higher production and makes more money."

Thus, the forces of nature have combined to focus attention upon the Missouri Valley and its problems as never before. Just what the final program will be is anyone's guess, but a thorough airing of the issue can be expected from now until after the elections in the fall of 1952.

### Forum

(From page 2)

16) is the picture story of some weird sandstone formations in Mesa County, Colorado. **Will C. Minor** of Fruita, Colorado, submitted these unusual photos.

Tribute to a noted Washington, D. C., artist Minnie Briggs Raul, is paid in *Etching Nature* (page 26). **Francis B. Vertiz**, formerly an *American Forests* staff member and now a Virginia housewife, is the author. She tells us how the hobby of etching trees became the life's work of this gifted Washingtonian. The article is illustrated with some of the artist's etchings.

Also you will find *Davy and the Stupenjus Sturgeon* (page 25) another of **James Stevens'** humorous tales about Davy Crockett and the conclusion of AFA's *Report on American Big Trees* (page 28). For an analysis of latest legislative happenings in the capital there's **G. H. Collingwood's** *Washington Lookout* (page 4).

**Our Readers Say**—It was worth an error on our part to know our articles are closely perused by at least one senior editor at *Reader's Digest*. Marc A. Rose calls attention to Ted Bentz' *Nature's Poison Foliage* in which appeared the erroneous statement: "neither wind nor smoke nor rain will transmit (ivy) poison to your skin." Editor Rose says:

*The poisonous element is an oil always present on the surface of vines and leaves. I suppose it is under the surface as well. If poison ivy burns, the smoke carries droplets of the oil, capable of horribly poisoning bystanders. Worse than by contact, for it gets into the eyes. We have had some bad cases in Westchester County, where, by the way, the poison ivy curse is severe. I shouldn't bother to write except that your paragraph may mislead some poor cuss into thinking it safe to burn poison ivy after uprooting it. Another menace not mentioned by your author is pets, dogs in particular. They scramble through the stuff, get their coats well saturated with poison, and then you pet the creatures. Believe me, we are experts up here! I myself acquired my lore the hard way.*

Editor Rose is right on both counts.

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Experience and skill are required to handle the chipping instrument

Guided by The American Turpentine Farmers Association, the South's revitalized Naval Stores industry is reaping increasing dividends with modern production methods



A dip squad empties the cups from the trees. From this crude gum come the two primary products, gum turpentine and rosin



## Out of the Cracker Barrel

By EUGENE F. GRENEKER, JR.



**R**EMEMBER how you used to hunt up an empty vinegar jug or small lard can before you went down to the store to get the gum turpentine needed for a painting chore? You'd tote your washed out receptacle to the back of the store and there in the corner you'd have the clerk give you a dripping fill from a messy old 50-gallon barrel or drum. Those days are gone forever—and don't say you're sorry!

Yes, the "Naval Stores" industry—born of a need for calking in the king's wooden-ship Navy—is out of the cracker barrel era. It has had its face lifted (and we don't mean the face on that old pine tree). The transformation all began as late as the mid-30's, too. So complete has it been, a long absent oldtimer would have to be led by the hand to know what's happened to this, one of the nation's oldest agricultural enterprises. Its crop yield is still called Naval Stores or gum turpentine, but city folks buy it in neatly labeled packages, handled, often as not, by a prettily manicured Miss.

There's even talk, and some evidence, too, that yet scarcely explored chemical developments may utilize this once lowly regarded product as a springboard for yet unborn industries. If so, newly conceived chemical plants will undoubtedly attach themselves to the modern distillation plants now dotting Georgia, Florida, Alabama, Mississippi and the Carolinas in order to be closer to the supply of raw materials.

"The sticky, oozy substance, which is extracted only from the South's slash and longleaf pines, is correctly called oleoresin," Judge Harley Langdale, first and only president of the American Turpentine Farmers Association, explains. "But we turpentiners call it dip, crude gum, or simply gum."

Distillation and processing breaks this raw material into two products—gum turpentine and gum rosin—which are in heavy demand on the commercial front for hundreds of products. As one might suspect, the liquid gum spirits of turpentine still find their greatest demand in household uses and as a paint thinner. It can't be beat to penetrate the wood surface and anchor the paint. Rosin, a solid, goes chiefly into the manufacture of resins, varnish, soap and paper.

Prime mover in revitalizing this important agricultural industry of the Southland is the American Turpentine Farmers Association of Valdosta, Georgia, for which Judge

Langdale has given his all since 1936 when he helped organize the group and became its president. The fine hand of this tall and colorful lawyer-turpentine farmer, a one-time judge, and his AT-FA group is traceable through a myriad of modernizing techniques which include creating a popular demand for gum turpentine, sponsoring an active conservation program and campaigning for a price support which has actually showed a profit to Uncle Sam.

The Judge wants it understood, though, that the Naval Stores Research Division of the Bureau of Agricultural and Industrial Chemistry at Olustee, Florida should be credited with development of the key technological advancement—the modern steam distilling plant. Perfected in 1938, this new type of steam distillery assures consumers a uniform and dependable product of gum turpentine and rosin, and for the producer it has increased the yield.

Today less than 50 of the primitive old fire stills are still doing business, as compared to the thousands operating in the mid-30's. They'll soon be as rare as a horse and buggy, for their work is being done more efficiently and more quickly by a total of only 33 steam plants now dotting the most productive areas of the Gum Belt. Processors were quick to band together and build big central stills, and small landowners everywhere readily realized the quick profit that could be theirs by selling small quantities, even by the bucketful, for cash at the still.

Most of the modern distilleries maintain pick-up platforms in localities not large enough to warrant a big plant, and gum farmers have their choice of trucking to either plant or platform.

Coming of these plants swelled the ranks of turpentiners by the thousands. "Why, when our Association was first organized we could call a meeting of about 800 producers who would represent more than 96 percent of total production. Today we estimate a total of more than 8000 gum farmers," says the Judge.

The fact that the new plants will buy as little as a bucket of gum has, of course, done much to encourage the small operator. The last "hot" and declared war probably provided the bigger spur, though, with its greater emphasis on production of gum turpentine and rosin so vital to the war effort. Surpluses were completely wiped out, so thousands of farmers and owners of small farm woodlots went into the turpentine



With malt and broadax, two workers "streak" a tree for the first time

Cup's contents are dumped into bucket which later is emptied into barrel





AT-FA licensees package and market gum turpentine in convenient sizes

Gauge and thermometer have replaced the ear method of testing the charge



Spraying sulphuric acid on the slash speeds up and extends the flow of gum



business. Most have remained, for they've learned it's not much trouble to produce a cash crop almost the year 'round.

Thus the large producer has found his croppage greatly reduced. The man from whom he formerly leased timber now works it himself. Scarcity of labor during the war years also hurt the large producer, and many of these hands never did return to the woods.

The shift in balance from large to small producer still hasn't affected the importance of turpentine to the South's economy. Roughly 300,000 men are engaged in procuring the gum or dip from longleaf and slash pine forests in the six-state area of which Georgia is No. 1 producer. Florida follows in order of importance, then Alabama, Mississippi, South and North Carolina.

It all began in North Carolina shortly after the ring of the colonizer's ax had ceased to echo in the virgin forests. "Mother England took every barrel of pitch and gum early settlers could produce to calk seams and tar rigging of her sailing vessels, and although we have come a long way from those days the industry still goes by the 'Naval Stores' moniker," the Judge explains. "It is confusing to those not familiar with the trade," he admits.

The Judge is never happier than when he's showing visitors around his turpentine forests, most of which are located near Valdosta, "Gum Turpentine Capital of the World." His holdings total 110,000 acres on which he operates 90 crops of trees for turpentine. "A crop," he explains, "is composed of 10,000 faces, or that chipped area, on as many turpented trees."

Two of his sons, one a graduate forester, are actively engaged in operating these crops. A third son is a law partner with the Judge, but he also has an interest in the business. He would probably be disowned as a Langdale if he didn't, for Judge Langdale's love for pine trees can be read from the reflection of his eyes. One wouldn't be surprised to see him stop and pat one, as he would one of his eight grandchildren. He was reared in the Naval Stores industry and has gravitated naturally to a position of leadership and authority in this realm.

Last year, 1950-51 (the Naval Stores year runs from April 1 to March 31), the more than 8000 turpentiners were operating a total of 60,454,503 trees, or 6045 crops. The

value, as reported by the Bureau of Agricultural Economics, was \$33,662,000, the producer receiving an average of \$22.60 per standard barrel of gum. A standard barrel contains 435 pounds of gum which, when distilled, will average 11.5 gallons of turpentine (7.2 pounds to the gallon) and 290 pounds of rosin. The remainder is composed of pine needles, trash and rain water. Sales are on a cash basis at the central stills.

Further explaining the industry, the Judge will tell you the average turpentine today owns his own land, operates about a crop and a half, employs two chippers and three dippers. There are, of course, quite a few larger operations on which the labor forces are overseen by woods riders or woodsmen whose role is comparable to that of first sergeant or foreman. The average woods rider is responsible for about 12 crops. He sees that the cups are dipped, the trees chipped and that discipline is maintained.

"Because of labor conditions, smaller operations and keen competition from other forestry industries, no turpentine is making a fortune," Judge Langdale will tell you. "But, believe you me, he is making a steady, adequate and comfortable living."

Most turpentine farmers begin chipping when the trees reach nine inches DBH (diameter breast high, or 4.5 feet above ground). This is the size at which the U. S. Forest Service recommends tapping operations should begin. Some farsighted and progressive farmers, however, prefer 11-inch diameter before tapping. The average turpentine pine is worked about 10 years, five years on one side and five on the other.

Operations begin with the first breath of Spring, and they conclude, generally, late in November. The gum circulates more freely in the warm seasons. On the trees being worked, one fresh chip or "streak" is put on each week, starting at the bottom of the trunk and working up. Workers use a sharp, short instrument known as a "hack" for scarifying the trees during the first three years of operation.

For the next two years they employ a larger instrument with a similar sharp cutting edge, known as a "puller." These workers are so adept that it is a common occurrence for a good man to chip 5000 to 10,000 trees a week. The average is closer to 4000.

It's an interesting experience to follow a chipper in his drift of trees. He begins work as the sun comes up, enters the woods at the same point each morning, chips his trees and returns to his starting point late in the afternoon. Try it once. The National Guard, sheriff and posses will probably have to come searching for you before long.

The chippers seem to know literally every bush and tree, and you rarely hear about any of them being bitten by a rattlesnake. The oldtimers stomp, whack trees and whistle as they forge deeper into the woods. "Dat lets 'em know we is around, and dem ole rattlers don't wanna see us anymore den we wanna see dem," say the chippers.

Metal cups about a foot long are attached to the trees just beneath the streak to collect the oleoresin, or crude gum. As the cups become filled, workers walk among the trees and empty them. They carry buckets because they're easier to handle, and then they transfer the full buckets of gum to barrels. The barrels are then hauled to the processing plant for distillation into gum turpentine and gum rosin. There are about eight or nine such dipping operations a season.

Rosin falls into 13 standard grades, the names of which had their origin many years ago. Top grade is X or Extra, based on its paleness of color and clarity. According to the Judge, "A few of the early producers used to compare their rosin with the colors around them. For example, clear as water became Waterwhite, and a notch below that was Windowglass. Or it might be ginger colored such as one of the Negroes on the place, say Nancy. The lower grades went down the scale as being black as Frank, Edward, Dolly or Betsy."

The average grades made last year ranged from WW to WG to Nancy.

Rosin solidifies within about 24 hours after distillation, and it is sold in paper sacks of 100 pounds each, in steel drums of 520 pounds and in tank cars. Pricing on rosin is on the 100 pound basis, while turpentine is quoted by the gallon in bulk.

The gum farmer can realize yet one last bit of revenue even after the tree has outlasted its turpentine usefulness (when the face has reached 90 inches in height it's about done for). His trees are still in demand for thinning out and selling for poles, cross ties and lumber. Primarily, gum farmers operate only for turpentine, so any operation such as this is entirely incidental and, in most cases, an unplanned windfall.

The Judge recalls with a chuckle how an expert government economist came up with the classic solution to the then sick industry's economic ills during the first days of the New Deal. It seems this expert sat in at an emergency meeting at which the Judge was presiding in the days when corn was being plowed under, pigs slaughtered and the ominous sounding expression, "overproduction stimulated by lack of purchasing power," was scaring the daylight out of people.

"In view of such programs we turpentiners were expecting any day to receive orders to cut down our trees and halt the flow of turpentine and rosin," the Judge said. He admits great quantities of these products were stacked up and that buyers were scarcer than Republicans at a Georgia political rally. This state of affairs was haunting more forestland homes than the proverbial ghost in the attic.

"The expert declared the solution to our problem was simple," the Judge continues. "He said we had more rosin than turpentine, so why not take rosin trees out of production. The crowd enjoyed the joke until it dawned the man was serious. Then . . . well, this expert has never

been back so far as I know." (Both products come from the same tree, remember?)

Conditions are considerably more stable now, though, thanks to the American Turpentine Farmers Association. It's a non-profit organization supported by dues its members pay on each barrel of gum produced. The board of directors, elected each year by the producer-members, at present includes Judge Langdale, J. M. Gillis, Jr., R. M. Reynolds, A. V. Kennedy and J. M. Cook, all of Georgia; Will Knabb and R. H. Gibson of Florida, M. C. Stallworth, Jr., of Alabama, R. M. Newton of Mississippi, and Judge O. H. Rhodes of South Carolina.

Judge Langdale has been the only president of the group. The other officers are R. M. Newton, vice-president; Ray Shirley, formerly state forester of Georgia, secretary; Ora B. Hemmingway, assistant secretary-treasurer; and J. Lundie Smith, general counsel.

Among its most successful services was sponsorship in 1938 of a national advertising campaign to get more people to use gum turpentine. At the same time it had designed attractive, lithographed tin containers and beautifully designed bottles—all bearing the AT-FA Seal of Approval. Thus was discarded the cracker barrel in favor of a modern merchandising dress.

The Association followed by conducting national surveys to create new markets and stimulate old. Home owners all over the country were told the advantages of gum turpentine, not only for thinning paints, but for cleaning floors, furniture, woodwork, porcelain and metal fixtures. Distribution for the product was promoted in cities and towns all over the country. Great mail order houses joined in handling the commodity, as did

(Turn to page 45)

Proper chemical treatment improves transparency and quality of rosin. Note difference in group of three at left, two at right







## AILING WOODLOTS? Foundation Cures 'Em

Only seven years old, this New England group has made huge strides in helping owners of small woodlots show a profit

By WILLIAM H. CLARK



New England Foundation's foresters available for the asking. Harris A. Reynolds, secretary, at lower left

**S** EVEN years ago New Englanders decided to give a long-pondered woodland management theory the acid test. With typical Yankee reserve they wanted to find out about—before accepting—the new-fangled idea of hiring a trained forester to handle small forest properties. Was it economically sound? Was it worthwhile for the small property owner? Could it be applied to varying conditions? By early 1948 when *American Forests* gave its readers the first progress report, the theory was meeting the test. In practice it was proving that technical know-how pays off where haphazard management fails. The New England Forestry Foundation was a success.

Today more and more skeptics are climbing on the bandwagon and what

started out as a test in 1944 is now a full-fledged movement—a significant forward step in forestry. In 1948 the Foundation had eight foresters, today it has 14. Three years ago it was servicing 172 clients a year, by the middle of this year it had already served 630 clients. This year it has made plans for 181,000 acres of woodland owned by these clients and has carried a large part of the plans through the first improvement stage. When the 1948 report was compiled only 58,000 acres were processed.

Already the Foundation has harvested and sold for clients more than 34,000,000 board feet of timber and has in its charge, as agent of the owners, in excess of 247,000,000 board feet of merchantable timber.

The basic idea behind the Founda-



tion is that, as a private, non-profit, educational corporation, it assists woodland owners in the management of their properties at cost. The Foundation aims at increasing the income from privately-owned woodland by growing more and better commercial timber. By cutting at stated intervals, the owner receives a steady and, in most cases, a permanent income. Behind this specific purpose is the general hope that the forest resources of New England will increase in importance and in value under good management. Thus the community and the nation is served as well as the individual owner—for wood is one of the greatest natural resources of the country, and if properly managed, is never exhausted.

◀ **BAD**—This owner's forest profits are gone forever

▼ **GOOD**—Foundation leaves trees for future profits



Under the system of marketing timber, in practice ever since the country was settled, owners, particularly of small holdings, have sold their timber as stumpage—frequently at a low price—to operators. The operator often establishes a portable mill and ravages the property by clear-cutting. Everything is swept away, even small trees which cannot be sawn profitably. The results are well known. The bare land is valueless—scarcely worth the taxes—because it will be 50 to 70 years at least before sawlogs can be cut from it again. The soil is exposed to erosion, the high-piled slash remains a fire hazard for years and the mess is a perfect nursery for insects and diseases to afflict the entire neighborhood. Since nothing is done, the land

goes through the long cycle of reproduction by which the procession of forest trees runs its long way from worthless scrub to the final valuable pines, spruce, and hardwoods. The second crop is generally of poorer quality and less quantity than the first crop.

The Foundation is helping eliminate all this by demonstrating that through the application of modern forestry principles, a crop can be harvested while the forest continues growing at its optimum. In a sense, the forest becomes a production line which can produce regular income while it actually increases in value. The forest economy is geared to continuous production, and not only the owners but the communities con-

panied by the owner or his agent if practicable, and determines what products are merchantable and what improvements can be made economically. The forester prepares a brief, written report which includes an ocular estimate of value and volume of salable products and lists general recommendations for desirable planting, weeding, pruning, improvement cutting, and such other silvicultural operations as are advisable. The approximate costs of each are included.

Next, a *forest management plan* is prepared if it is considered necessary. This plan gives the owner a comprehensive appraisal of his forest as an investment. A careful inventory of the merchantable products is made to determine the value by species. This information is placed on a forest-type map, which is keyed to a written report. The report includes the present stumpage value of the products, an estimate of the current annual growth, the amount of timber which should be removed at the first cut, the recommended interval between future cuttings, with volumes which might be removed by such cuttings, increase in annual growth after cutting, and the property's value as an investment. To bring the forest to maximum production, recommendations are then added in detail for silvicultural operations and for measures to be taken to protect the investment from fire, insects, and diseases. Included is a careful estimate of approximate costs and returns.

When products are to be sold, the next step is *marking*. This is a service offered whether or not an examination or management plan has been prepared. The forester goes over the property and marks the trees to be removed, estimating the volume by species. This marking is governed by the needs of the forest and the wishes of the owners. For example, the owner may want an immediate financial return; or the marking may be just for improvement operation and the timber a mere by-product.

*Marketing* comes next in order. The Foundation, as agent of the owner, sends out a timber sale prospectus, procures the highest possible price for the marked timber, and, after the owner accepts the bid, prepares the sale and cutting agreements—an important service seldom enjoyed when a small owner deals directly with an operator. The Foundation's general policy is to collect the money due the owner before cutting. Cutting operations are closely supervised by the Foundation to as-

cerned benefit, for taxes are paid, work is provided, and there is a steady flow of native wood into local wood-using industries.

The Foundation operates through Forest Management Centers. There are now ten of these locally managed units serving New England. Each is in charge of trained foresters who operate within a radius of 15 to 20 miles. In general, each Center takes over the management of the properties in its charge, relieving the owners of all details through its various services—examination, management plan, marking, marketing and improvement.

The first of these, in natural order, is a *woodland examination*. A forester goes over the property, accom-

sure proper execution of the agreements and protection of the remaining growth. The Foundation's knowledge of markets, its wide contacts with buyers, its demonstrated experience in estimating the value and quality of a crop and its harvesting techniques are of value to both the owner and the operator. The operator is guaranteed the volume purchased, and for his part, the owner has his forest protected for future and continued production. As a rule he receives a much higher price for what is taken than he could obtain privately. Usually, the difference in income more than pays for the charges of the Foundation which are based upon actual cost.

For a small fee, a *forest improvement service* is available to the owner who wishes a complete management program. The Foundation plans for and supervises all recommended types of silvicultural improvements, forest roads and trails, water holes for fire protection—indeed, takes over, if desired, the complete management of the property. While most of this work is concentrated in the Management Centers, the Foundation is prepared to give complete service, or any part of its various services, on large tracts anywhere in New England.

One more feature of the Foundation's activities is the acquisition and operation of forests of its own as demonstration areas. The Foundation accepts only tracts which are capable of being self-supporting from the start. One such is at Sharon, New Hampshire—the Lincoln Davis Forest—which carries itself while being

developed as an example of what can be done in New England in making private forestry pay. It is hoped that each Management Center will in time have its own demonstration forest.

Examples of the work the Foundation is doing show more clearly what has been accomplished.

**Water Boards and Town Forest Committees.** The Foundation has done and is doing much work for these organizations. An outstanding example is service rendered to the town of Russell, Massachusetts, which owns a 3000-acre tract set aside as a town forest and watershed. The Foundation's management plan showed that this forest, while its primary purpose was water protection, had an annual growth of 75,000 board feet plus some 400 cords of fuel or pulpwood. The plan shows that, under management, this forest would eventually bring in an annual income of \$1200. Other water boards for which the Foundation has worked include Pittsfield and North Adams, Massachusetts, where the plans show how by selective cutting, the water conservation purposes can be protected and yet annual incomes of substantial figures can be obtained. The Water Resources Board of New Hampshire, with substantial holdings, has also been served by the Foundation.

**Fish and Game Clubs.** The Foundation has prepared management plans for fish and game clubs in various parts of New England. One area of some 20,000 acres, is of particular interest. The area is fenced to restrain the deer, elk, and wild boar, but the management plan provides for proper care of the wildlife while

still harvesting the timber. A sawmill is kept in almost constant operation, and in addition to the income thus provided, the annual cutting not only releases young conifers for game cover but provides winter browse for the elk and deer from the tops of the trees cut, and the young sprouts give summer feeding. The Foundation is demonstrating that good game management and good forestry can go hand in hand.

**Private estates.** The Foundation is managing forests on many private estates, where the owners are more concerned with esthetic than financial values. Owners had been unwilling formerly to sell their over-ripe timber to operators for fear of clear-cutting devastation. The Foundation has cut millions of feet of excellent timber on these estates and brought them into the forest economy. Near Mount Chocorua, New Hampshire one of the most beautiful and photographed regions in America, the Foundation has cut selectively more than a million feet on one estate to the complete satisfaction of the owner and without criticism from the public. In this work, landscape features have priority, and thus the owners have been shown from the standpoint of beauty that they can have their cake and eat it too. By selective cutting, an annual income is provided and the property pays a dividend while the beauty of the forest is preserved.

**Small holdings.** The Foundation is particularly concerned with solving one of the biggest forestry problems in New England—how to apply forest management to the small holdings by the removal of weed trees and other low grade materials. On small holdings the amount of timber to be sold is not sufficient to attract the private operator. As a rule the owner is not equipped to do the cutting himself, and he is seldom able to finance the cost of improvement cutting. The Foundation has offered a solution in the form of management units—two or more neighbors unite to have their marketing done at the same time as well as having their silvicultural work carried along jointly. This cuts expense and also increases income, for an operator can offer more per unit for a large volume of timber than he can for a small volume. In Maine recently, an owner joined with his neighbors who own small woodlots in making a sale. If the small owners had made individual contracts, they could not have received more than \$10 a thousand, but

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To utilize material unfit for timber or pulp, the Foundation is making charcoal and has assisted in organization of a privately-owned marketing company



# PROGRAM

## for

# AFA'S ANNUAL MEETING



**Dr. C. A. Schenck feature speaker. Plans complete for gathering in Jefferson, New Hampshire White Mountains October 8-9-10**



**Dr. Carl A. Schenck**

**T**HE program is now complete for The American Forestry Association's 76th anniversary meeting October 8, 9 and 10 at Jefferson, New Hampshire. Dr. Carl A. Schenck, internationally famous forester from Darmstadt, Germany and early day professor at the historic Biltmore School near Asheville, North Carolina, has been named as speaker for the annual banquet. An impressive array of speakers at the other sessions has also been assembled, and a series of field tours arranged.

The availability of Dr. Schenck, at 83 an amazingly dynamic orator and philosopher, provides an unexpected treat for AFA members planning to attend this year's meeting in the colorful and scenic White Mountains. The Doctor has recently completed an extensive tour of this country and has been honored many times in his travels. He arrived in New York during mid-May for his first visit since 1938.

Dr. Schenck likes to reminisce that he "first discovered America in 1895" when he came here to be forester for George W. Vanderbilt's Biltmore estate. There were no forestry schools then and forestry as a profession did not exist in the United States. It was in 1898 that he started the Biltmore Forest School, wrote textbooks for the courses and turned out some 400 students during the 15 years the school existed. There will be a reunion of those alumni on Sunday, October 7, concurrently with registration for the AFA meeting.

The Honorable Sherman Adams, governor of New Hampshire and a qualified professional forester as well, will deliver the keynote address at the October 8 opening morning gathering, his subject being "People and Conservation." Edgar C. Hirst, president of the Society for the Protection of New Hampshire Forests which is celebrating its 50th anniversary at this joint meeting, will preside at the 9:30 opening. He and D. C. Everest, AFA president, will deliver brief messages of welcome.

Following Governor Adams' address, a panel forum on the People and Conservation topic will be moderated by Lloyd E. Partain, AFA Board member and head of Curtis Publishing Company's research staff. Making up the panel will be David Graham, financial vice-president of Weyerhaeuser Timber Company; X. L. Pellicer, vice-president of the St. Augustine, Florida National Bank; Dr. Paul B. Sears, Department of Conservation, Yale University; and L. F. Whittemore, president of Brown Company.

The afternoon will be devoted to a choice of field trips to a veneer plant, tree farms, plantations, the White Mountain National Forest, commercial logging operations, and to scenic areas and camp grounds.

The annual banquet has been scheduled for 7 p.m. In addition to the feature address by Dr. Schenck, AFA's yearly awards will be present-

ed to individuals who have made outstanding contributions in various fields of conservation. Initiated in 1948, these Conservation Awards are coveted and prized by conservationists everywhere.

Tuesday, October 9, will be devoted to an all-day field trip by bus only. Points of interest will be the Cascade Paper Mill, Brown Company pine plantations, managed farm woodlots, Phillips Brook logging camp, International Paper Company tree farm, Paris Manufacturing Company, Eames 4-H Memorial Park, state parks and the St. Regis Paper Company operations. There will be movies in the evening, followed by an old fashioned "Sugaring-Off" party, New England style.

The program on the final morning, October 10, will be conducted by the Society for the Protection of New Hampshire Forests, during which there will be special speeches. In the afternoon alternate field trips to Bartlett Experimental Forest, Mt. Washington, Crawford Notch, Franconia Notch, Lost River Gorge, Dartmouth College grant and Bear Brook state park are scheduled.

Headquarters for the meeting will be Jefferson's renowned Waumbek Hotel. Manager Kenneth P. Kenyon reports numerous advance reservations are already on hand, but there's still time to drop him a line. Members will receive a special rate of \$12 a day, American plan (hotel and meals).

**Governor Sherman Adams**



**Lloyd E. Partain**



**Edgar C. Hirst**



**D. C. Everest**







C. O. Munson



Theodore Fohl



Today's universal program of cooperative protection was born in 1905 as these pioneers sat atop a now-historic granite boulder in Idaho's Clearwater forest

**A**BOUT two miles past Dull Axe lookout, Bert Curtis pulled off the side of the road and brought from the trunk of his car an ax considerably sharper than the one after which the lookout was named. Exchanging light driving shoes for calked boots, the husky chief warden of the Clearwater and Potlatch Timber Protective Association sized up the steep, brushy hillside above the road.

"Haven't been up to the rock in about 15 years," he commented. "Guess we'll have to do some trail cutting."

His first ax swing was answered by a crashing in the underbrush a few hundred feet uphill.

"Bear," Curtis grinned. "Getting

Idaho leaders dedicate rock during midsummer ceremonies

## Two Men a

By O. A. FITZGERALD

huckleberries." It was mid-August and bushes were loaded with large berries, dead-ripe.

Described by friends in the Clearwater forest of Idaho as almost the equal of a bulldozer in digging a fire line, Curtis demonstrated during the next half hour equal adeptness in swamping trail.

Atop the ridge we came to an old trail, the route of early day miners to diggings on the Clearwater. Underbrush had concealed it in places but



Army truck (above photo) from World War I marked beginning for mechanization in Clearwater area. Today, tank trucks (left) are standard fire gear





still there was the deep rut gouged out by the parade of miners. Following the old sourdough trail to the point we came to a massive hunk of granite towering above the brush.

"There it is," Curtis said, almost reverently. Flanking the big rock, sentinel-like, were a pair of dead snags, victims of some fire of long ago.

To the ordinary visitor in the Clearwater this rock doesn't look a bit different than the thousands of other hunks of granite you see poking out of the Clearwater hills in any direction you look. But Curtis quickly makes it clear there isn't another like it, either in forestry history or in his affections. In fact, he insists

**One bulldozer does the work of 100 men in brush piling**



**Jam in the Clearwater, route of the last of the big log drives**

**Shooting some of the white water in Idaho's picturesque north woods**



## and a Rock

it might well be called cooperative forestry's Plymouth Rock.

The trail swamping Curtis did that afternoon was the first step in bringing the historic rock out of its seclusion. The most recent was taken in midsummer of this year when Idaho's Governor Len B. Jordan, members of the State Land Board, and forestry leaders visited and dedicated the rock as the birthplace of cooperative forest protection. Now will come the construction of a view platform so visitors can see the same white pine empire Theodore

Fohl and C. O. Munson saw 46 years ago.

The conversation those men had as they sat on that rock on another August day, in 1905, still is paying off big—in the forests they saw around them and in forests all over the United States. Fohl was one of the first timber cruisers for the Weyerhaeusers in Idaho. Munson was Idaho's first state land commissioner.

A devastating lightning storm, typical of the trouble makers that still harrass forest defenders along the Clearwater, had swept through a few days before. Going up in smoke in any direction they looked was a fortune in white pine.

There wasn't much Fohl and Munson could do about those fires. The rock on which they sat was a five day hike from the nearest town over the old sourdough trail. Any fire fighters had to walk in that way. Even when they arrived there wasn't much they could do except draw pay and slow down the fire—sometimes—until a rainstorm came to their aid.

**Airport and Clearwater Timber Protective Association's headquarters**

While watching millions of dollars worth of the nation's finest white pine going to blazes, the pair talked about next year, the year after, and the year after that. Even those seemingly endless forests could not survive such fires indefinitely.

What Munson and Fohl saw before them was as complex a pattern of ownership as could be found anywhere. In fact, their activities in acquiring timberlands had contributed toward the crazy-quilt pattern of ownership. One section might belong to the University of Idaho under its land grant. Next to it might be one Fohl had acquired for the timber company. Another might belong to a railroad, the adjoining one a section Munson had tagged for the public schools. Next might belong to Uncle Sam. Here and there were homesteader shacks.

From their vantage point, a natural lookout if ever there was one, Fohl and Munson could see that fire paid no attention to property lines. It's appetite for railroad timber was no greater than it was for timber des-

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## STONE FACESO

Grotesque gargoyles haunt this lonely stretch of sandstone in the canyon country of Colorado

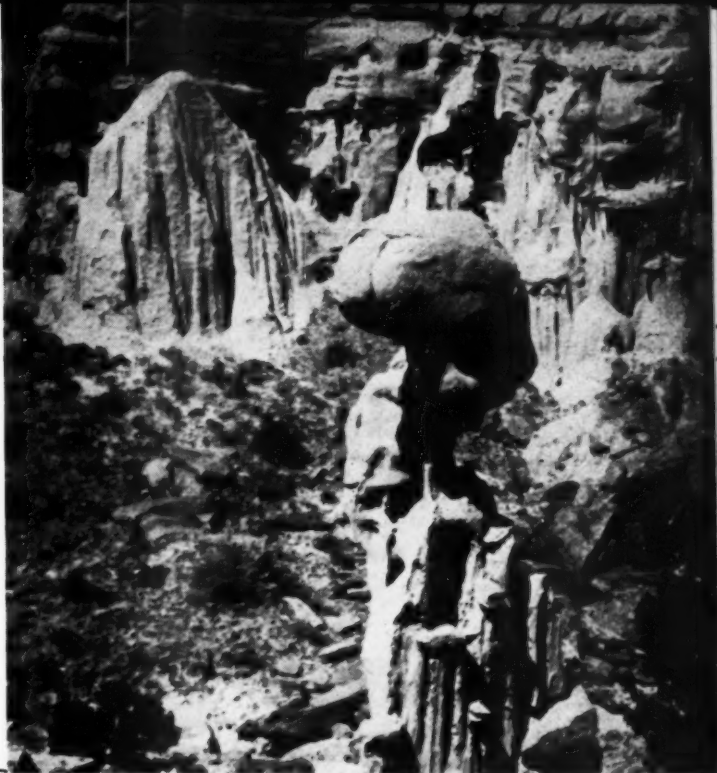
Modernistic sculpture? No, just another of nature's caprices

A close-up of Rubberneck Rufus, member of the stone-faced family that inhabits Goblin Gulch



By WILL C. MINOR

From a white sandstone gulch in Mesa County, Colorado, nature has sculpted a bizarre collection of stone faces—some human, some animal, some nightmarishly fantastic. Most of these eerie caricatures are eroded from the cliffs and are really part of the walls. A few stand detached and apart from the surrounding cliffs, which are about 50 to 60 feet high. The stone ghosts and goblins themselves range from 20 to 40 feet in height. Mother Nature was in a prankish mood, indeed, when she carved these weird characters



View of a section of the gulch from east rim. Formation is located near the Colorado-Utah line

## ES OF GOBLIN GULCH

Looking south toward the head of Goblin Gulch. Professor Bonehead poses stonily in foreground



The Faces on the Wall, two of the most remarkable of the formation's fantastic caricatures





# VOLUNTEER FOREST GUARDS



Proved a success during World War II, recruitment of Indiana youths to fight fires has since become firmly established as a permanent program

By NORMA L. LINTON

VIGOROUS and healthy trees continue to flourish along Indiana landscapes today as the result of successful and careful planning on the part of the state's Volunteer Forest Fire Fighter Guards. The success of this conservation program is the outgrowth of nine years sound economic planning to preserve Indiana's vitally-needed acres of timberland.

It all began in 1942 when, as a part of a nationally conceived patriotic movement, youths in nearly every forested state formed themselves into volunteer bands of forest fire fighters. Their ability to do a man's job was widely acclaimed, but in most places enthusiasm waned and organizations disbanded when hostilities ended.

In Indiana, however, the governor had on July 1, 1945 specifically requested that the youth of Hoosierland continue to hold itself in readiness to perform this much needed service whenever the occasion should arise. His plea fell on attentive ears.

Since its modest beginning, more than 29,000 youthful volunteers have been trained in the state's extensive fire fighting program. Students from 385 high schools have spent 12,700



Youthful volunteers learn how to use the "one lick" method in making a four-foot wide fire line down to mineral earth

Indiana girl volunteer practices the job of locating fire with an alidade







Hoosier boys get some expert instruction on how to handle a fire rake when on the fighting line

man hours fighting forest fires on 30,403 acres and not a single accident has befallen any of the volunteers. Railroad crews, national guard units, Boy Scouts, civic organizations and other adult groups have also taken an active role in the training program, making fire prevention more than a watchword in the Hoosier state.

The rise and success of the Forest Fire Fighters' Service is largely traceable to Joe S. DeYoung, who in 1942 was appointed State Coordinator. Since that time he and thousands of Hoosiers have watched the organization pay off in community and state rewards. Much credit is also due T. E. Shaw, Department of Forestry, Purdue University, for his assistance in the success and expansion of the program.

During World War II, manpower was at a premium in the Hoosier state. At the same time, however, the Indiana Division of Forestry recognized the necessity of continuing its fire protection service to the public, not withstanding the few men left to do the job.

Foresters recognized that, given proper training and tools, high school boys and girls could perform a useful service to their community and state by assisting in fighting forest fires. The program would have a dual purpose. First, it would provide fire fighters, equipped and trained to augment the forest protection agencies in the area. Second, it would acquaint the people in the area with their responsibility in fire prevention and suppression.

Here was an architect's drawing of a conservation program which has since been tested and proven basically sound. Not only are these volunteers assisting in the protection of Indiana's timberland, crops and property, but at the same time they are becoming steeped in the methods and traditions conservationists advocate.

In April, 1942, foresters had their formula to meet the wartime emergency in Indiana, but to get their program in operation they had first to begin at the grass roots level. They enlisted assistance from high school principals throughout forested areas to permit the training of students. They also appealed to youngsters' parents to allow them to enroll in the Forest Fire Fighters' Service program, provided they were physically capable.

During the past calendar year alone more than 3800 volunteers were schooled in fighting outdoor fires. Records show the total acres of forest and nonforest lands burned declined from 5454 acres in 1949 to 3797 in 1950, thanks at least in part to considerable assistance by many southern Indiana high school crews.

Training of the Guards consists of the showing of Forestry and Conservation films, and a safety demonstration in the proper handling, care and use of fire tools, before youths go into the forested areas and actually rake a fire line, using the "one lick method." All fire training is conducted by well-qualified officers of the Division of Forestry, which consists of district and local fire war-

dens. Students under 16 years of age are not allowed to engage in fighting outdoor fires.

District fire wardens in southern Indiana who have a large investment in the program include: L. E. Kern, Martin State Forest, of Shoals; Austin K. Easley, Jackson State Forest, Brownstown; Joe Brishaber, Clark State Forest, Henryville; Vernard Rice, Selmier State Forest, North Vernon; and, Emmeron Tretter, Ferdinand State Forest, Jasper.

Indiana woodlands yield some of the most valuable hardwood timber in the world. Foreign countries recognize red oak, black walnut, white oak, tuliptree and sugar maple from the Hoosier state as the finest and most valuable among hardwood timbers. Without adequate fire protection, these forests cannot reach their maximum growth. Indiana boasts 4,250,000 acres of timberland, including 105,000 acres of state and

110,000 acres of federally operated woodland.

The greatest fire hazard is in the southern part of the state where woodlands and abandoned farm areas, covered with broomsedge and weeds, are more extensive. The practice of burning is also more prevalent here than in the northern sector. State forest fire fighters, for these reasons then, are largely concentrated in the southern half of Indiana. All crew members are thoroughly trained and organized into efficient units, all under the careful supervision of fire wardens.

And so, though the FFFS started out as a wartime emergency, and a stop-gap measure in a weakened community chain, it has continued to aid local fire wardens in spotting and combatting forest and brush fires.

Each year forest fires cause considerable losses in the actual amount of timber burned. During the past calendar year in Indiana the three main causes were debris burners, smokers and railroads. Debris burners alone were responsible for 50 percent of the fires. Much of the damage is often hidden and cannot immediately be determined.

If fire does not destroy the tree outright, it will expose or burn the roots and leave fire scars on the stem. Scars left at the base of a tree may not at first appear serious but the extreme heat or other burning materials may kill the cambium or growing layer without burning the wood. The bark on fire-scarred trees is also

far more subject to attack by insects and other diseases.

Extremely important to a healthy growing timber stock is the forest floor. Inasmuch as most fires in Indiana sweep along the forest litter and undergrowth, the ability of the woods to develop is greatly retarded. Countless tree seeds which are vitally needed for reproduction are destroyed. Seedlings, saplings and poles are burned. Also, trees left standing after a fire show a lessened growth rate.

Fire destroys soil fertility and humus, removes cover, and increases erosion. The burning of organic matter causes a loss in soil fertility. Other forest values seriously harmed by fires are birds, wildlife and recreational meccas.

In helping to preserve a forest plantation, fire lanes should be plowed around the area and disced once a year to keep it free from weeds and grass. On a large plantation, fire lanes should also cross the area, to save most of it in the event a fire occurs. If fire lanes are to be plowed or disced to expose bare soil, however, they should be "on the contour," or erosion and gullies often result.

Indiana has a large investment in the preservation of its forest plantations. There are 3,250,000 acres of woodlands to protect from fire and 1,750,000 of these are under intense protection.

In describing fire fighting methods used in the Hoosier state, presup-

pression—the preparation necessary to have an efficient organization ready to meet all types of emergencies and be fully prepared to attack all fires—is highly important. This includes the establishment of a system of fire towers and training of personnel for fire detection; providing and maintaining an adequate communication system for reporting fires; determining hazardous fire weather; providing and maintaining adequate transportation for the organization; and organizing, training and equipping fire fighting crews with the necessary tools to engage in the operation.

Immediate detection of fires is also of fundamental importance, for this saves man hours and keeps damage at a minimum. A network of fire towers keeps workers constantly alerted to fire outbreaks in the southern area of the state, five of these being operated by the U. S. Forest Service.

Speed in reaching a fire is another of the "musts" in determining the efficiency of the fire fighting crew. The attack consists of constructing completely around the fire a trench or path from one to three feet wide in which all fuel has been removed down to mineral soil. Checking and mop-up work begin immediately after the control lines have been established.

Fire fighting is a very hazardous business and requires the maximum of skill and efficiency from each volunteer in the organization. No high school girl or boy is allowed to engage in actual fire fighting unless they have received written permission from their parent or guardian.

To insure the most satisfactory results and prevent men from being injured, each fire fighting crew is under the supervision of one of Indiana's experienced Fire Wardens. The Warden selects his volunteers for each position in the crew and gives clear-cut and definite instructions before attacking the fire. Close watch over the workers while actually fighting the fire is necessary for the safety of each man in the organization.

Today the Forest Fire Fighters' Service has outgrown its swaddling clothes. Now an increased FFFS program is being sponsored by the Division of Forestry in cooperation with new civilian defense programs, and blueprints have been drawn so that in case of all-out war more than 400 fire fighting units of the FFFS will be prepared to protect the 4,250,000 acres of timber in the state.

The new program also consists of an expansion in present activities,  
(Turn to page 47)

Well-trained crew demonstrates skill on actual ground fire.  
More than 29,000 volunteers have been trained since 1942



# YOUR SHADE TREES



*.. Know Your Tree Expert*

**J**UST as there are charlatans who corrupt the medical profession so are there quack tree doctors and misguided amateurs who can do irreparable damage to your favorite shade tree. It is difficult to realize that in this enlightened age such ignorant practices still exist in competition with intelligent methods of tree preservation. But secret formulas, miracle cures and other elixirs always seem to find a market among the gullible and the bargain hunters. A glib tongue and a forceful personality have been responsible for the needless expenditure of untold dollars and inestimable harm to trees.

While some ministrations of quacks, although worthless, do not actually damage trees, in many cases definite injury or death occur after treatment.

Whenever there is an increased interest in a subject, there are always unscrupulous individuals who seize on such a golden opportunity to prey upon unsuspecting "John Public" at his expense and later regret. This malpractice has already made itself manifest in connection with the growing interest in trees in this country.

The trees of some states and cities are fairly well protected by regulation. In such states and municipalities the would-be operators must pass an examination in tree care and se-

cure a license before they can professionally administer to tree ailments. Such restrictions are far too few and in many cases, it must be confessed, are not too stringent in requirements. A fertile field of endeavor for garden clubs, shade tree protective associations, and other organizations lies in sponsoring such legislation that will assure more communities and states of satisfactory supervision and control over shade tree operators.

"But," you ask, "how am I to distinguish between the real expert and the quack?" Of primary importance to you is the reputation and experience of the organization which you call in for advice concerning your trees. If such a reputation is based upon actual beneficial results over several years among your neighbors; if the representative appears to be thoroughly trained and conscientious; it is usually reasonably safe to depend on such advice as may be given.

Although tree preservation work has been carried on for hundreds of years, present day methods are comparatively new and are being constantly changed and improved. It is important, therefore, that the organization or individual to whom you entrust your trees be familiar with the newest methods of diagnosis and treatment.

As in the case of the medical profession, correct diagnosis is a large part of the cure. For this reason, more and more college-trained arborists may be found in the tree service field. A knowledge of the basic sciences as taught in forestry and agricultural colleges, combined with years of practical training and experience, enables the trained arborist to accurately diagnose tree symptoms and prescribe proper treatment.

If you are in doubt about whom to consult concerning your trees, your local city forester, tree warden, park



**Tree surgery is no job for an amateur**

superintendent, state agricultural stations, forestry colleges, or the officers of shade tree conferences are usually willing to advise you as to someone nearby whose advice may be followed with safety.

If you wish to rely on your own judgment, make sure the recommendations made to you are satisfactory in the light of the following questions:

*(Turn to page 43)*

**Science improves fertilization methods**





By DAVID PERLMAN

# FLYING F



Helicopters are playing a vital role in scouting forest fires and in transportation of key personnel and supplies

**T**HE tiny Forest Service plane in which I was riding headed into the high country of California's Lassen National Forest. When we reached the towering Douglasfir stands we dipped into a steep canyon, split by a stream. On both sides the trees showed the bare gray trunks of a fire scar.

"Duff Creek," the pilot said. "We tried a new stunt on that burn—dumped dry ice into a cloud from high up. One minute the boys on the fire line were sweating in their skivvies; next minute it was snowing

right on the blaze. Drowned that fire fast."

The pilot, tousle-haired, tall, 32, was Cal Ferris, chief pilot of the California Region of the United States Forest Service. A graduate forester and veteran airman, he is the Service's only full-fledged flying forester.

Cal, a pioneer in the unique and adventurous postwar science of aerial forestry, has had many weird and dangerous missions. Canyons, river gorges, mountains and ridge-rimmed airstrips are his daily flying terrain.

On flights up and down the 1200-

mile spine of California, Cal pointed out to me the scenes of dozens of aerial dramas. Here was the spot he'd first parachuted fish, frozen inside a block of ice, to restock a glacial lake. Here was the burned-over mountain where he and his pilots kept 700 forest fire fighters supplied entirely by air for a week. Here was a stand of tall sugar pines, California's most valuable timber crop, saved from death by low-level spraying against white pine blister rust. Here was Monache Meadow, 10,000 feet up in the Sierra back-country, where planes had

# FORESTER

California's Cal Ferris, a leader in the postwar advancement of aerial forestry, has helped prove that the airplane is a tool of a thousand uses in conservation of the nation's natural resources

spread poison on a sudden invasion of voracious grasshoppers, and killed them before they could destroy the rich forage grasses. Here was the rugged terrain of the great Wheeler Springs burn, sprouting green again after an unbelievably dangerous job of seed-sowing from the air.

Working under two forestry veterans—Clare Hendee, regional forester, and Frank J. Jefferson, regional chief of fire control—Ferris has combined his forestry know-how and aviation experience to develop the plane as a tool of a thousand uses in the conservation and wise management of this nation's natural resources. America's tremendous National Forest heritage stretches over an incredible area—180 million acres, lying in vast tracts from Puerto Rico across 42 states to Alaska.

The work Cal is doing so well is an outgrowth of pioneer work begun

in 1919 and before in the U. S. Forest Service's Region I at Missoula, Montana, where aerial fire fighting has played an important role ever since. California and other areas weren't long in following the Region I lead.

In California, Cal has built up an air force that sometimes numbers a hundred aircraft. Only a handful are owned by the Forest Service; the rest are flown by commercial pilots under short-term contract to the government. His chief assistant is his operations officer, Steve Ayres, another veteran mountain pilot.

In the summer months, when the forest fire danger meters read "extreme" at ranger stations throughout the state, Cal and Steve alert the private pilots who stand ready to drop all other jobs when the Forest Service dispatchers call. Cal himself selects these private flyers; he in-

sists that none may fly for the Forest Service without hundreds of hours of mountain flying experience; and he indoctrinates them all with his own deep concern for the protection of America's vital forest resources.

"For generations we wasted this wonderful land of ours," Cal says. "We burned it, logged it off and overgrazed it. Now we've learned how to save it, to use it properly for pleasure and profit and still keep it green for the generations to come."

Like all pioneers, Cal is a zealot. Ever since he joined the Boy Scouts in Los Angeles at the age of 12 he has been in love with forests. He fought his first forest blaze at 13, hunted and fished and camped on the California mountains all through his boyhood, and before he had graduated from the University of California's School of Forestry he knew where his life's work would take him.



Food is dropped by parachute to fire fighters in Sequoia National Forest

Pilot Ferris talks with factory representative after trying out a new plane for use in the California USFS region



He knew, too, about mountain flying, for he had learned to pilot a plane at 17, and worked his way through college making survey flights over the big timber for the Forest Service. During World War II he ferried men and weapons over the Himalayan "Hump" to China. Home from the war, he joined the Forest Service as a full-fledged flying forester, and ever since then he has been ardently selling the airplane as a forestry tool. In California alone, Service use of aircraft has jumped from 892 hours in 1946 to nearly 6000 hours last year, worst fire season in 26 years.

Cal himself is always ready to take his red-winged Forest Service plane into the air on some new and sometimes hazardous experiment. Take, for example, the Wheeler Springs burn in the Los Padres forest in southern California. When 25,345

steep slopes. In a few months Ferris was able to report from an aerial survey that the 20,000 acres they'd sown were beginning to show green. Next winter the rains poured onto the mountains above Ojai, and they have come again each year since. But the mustard roots have held the topsoil down; there are no dangerous eroded gullies above Ojai, and the town is safe from flood. As a result of that project, aerial reseedling for watershed control has become standard practice. Done by ground labor the same job would take months more time, cost at least twice as much, and perhaps be too late.

Criss-crossing the forest slopes and canyons from dawn to dark during the summer and fall, Cal's patrol planes are able to discover fire smoke swiftly and radio its location accurately. In one case a tanker crew,

the familiar patrol planes flying low over the forest, Brenneis maintains, is enough to remind thousands of forest users of their primary fire responsibilities—to drown campfires, crush out cigarettes, and make sure each match is out before it is thrown away.

Cal is convinced he can stop lightning fires before they start, by bombing the electrically overcharged cumulus clouds with silver iodide and causing them to melt harmlessly away into rain. But cloud seeding is still a ticklish business; man-made rain may save a patch of forest and at the same time cause heavy damage to nearby crops. Because rain-making is still so hard to control, and lawsuits constantly threaten the cloud seeders, there are bills in Congress to centralize experiments in the U. S. Weather Bureau, and Ferris's snowfall on the Duffy Creek fire isn't likely to be repeated until rain-making grows out of its infancy.

On man-caused fires the planes have often played aerial detective. Last summer, when the disastrous Tecolote fire broke out in the Santa Ynez Valley, forest pilot Mel Missall spotted a man on a red motorcycle racing away from the blaze area. The plane tailed him down the road, and relayed a radio message through the fire dispatcher to the local sheriff. Within minutes the sheriff had picked up his quarry. The man confessed at once—he'd been an inmate of a State Hospital and the Tecolote fire was the sixth forest blaze he'd set. It was also the last, thanks to an alert Forest Service plane crew.

Cal himself caught two other arsonists even more dramatically. He was flying through the Santa Susana pass near Los Angeles and spotted a fire rushing out of control. Nearby two men scrambled down a hillside—away from the fire instead of toward it. He circled the scene and saw, a few hundred yards away, a blue Buick convertible parked under a tree. He lowered his flaps, and swung down as low and as slowly as he dared. On the rear bumper of the Buick he saw the orange and black of a California license plate; in a split second, just before he pulled back on his stick, he read off the license numbers. A radio message to a Forest Service dispatcher, relayed to the Los Angeles county sheriff, resulted in the arrest of the two men. The story they told was a grim one: they'd been off in the brush woods firing a gun "just for the hell of it"—with tracer ammunition! The forest fire

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Highway sometimes serves as a "heliport" for 'copters bringing up men, equipment

acres of brush cover burned off the Wheeler Springs watersheds, the Forest Service thought back to Pickens Canyon above Los Angeles, where a brush fire had been followed later by a flood that ripped out of the denuded watershed, engulfed 400 homes, killed 34 people and caused \$5,000,000 damage. The same danger threatened the town of Ojai, below the canyons of the Wheeler Gorge drainage, unless the burn could be reseeded swiftly.

Even while the ashes on the burn were still hot Ferris was surveying the scar from the air, and soon he and Steve Ayres and their crews were flying cargoes of mustard seed over the area. Crop seeding on flat farmland is easy, but here Ferris and Ayres had to follow the rugged contour lines, flying at near zero altitude through fog and high winds over

dispatched by radio from the plane, drowned a blaze within ten minutes of its start; another few minutes and that same fire might have taken hundreds of men to extinguish.

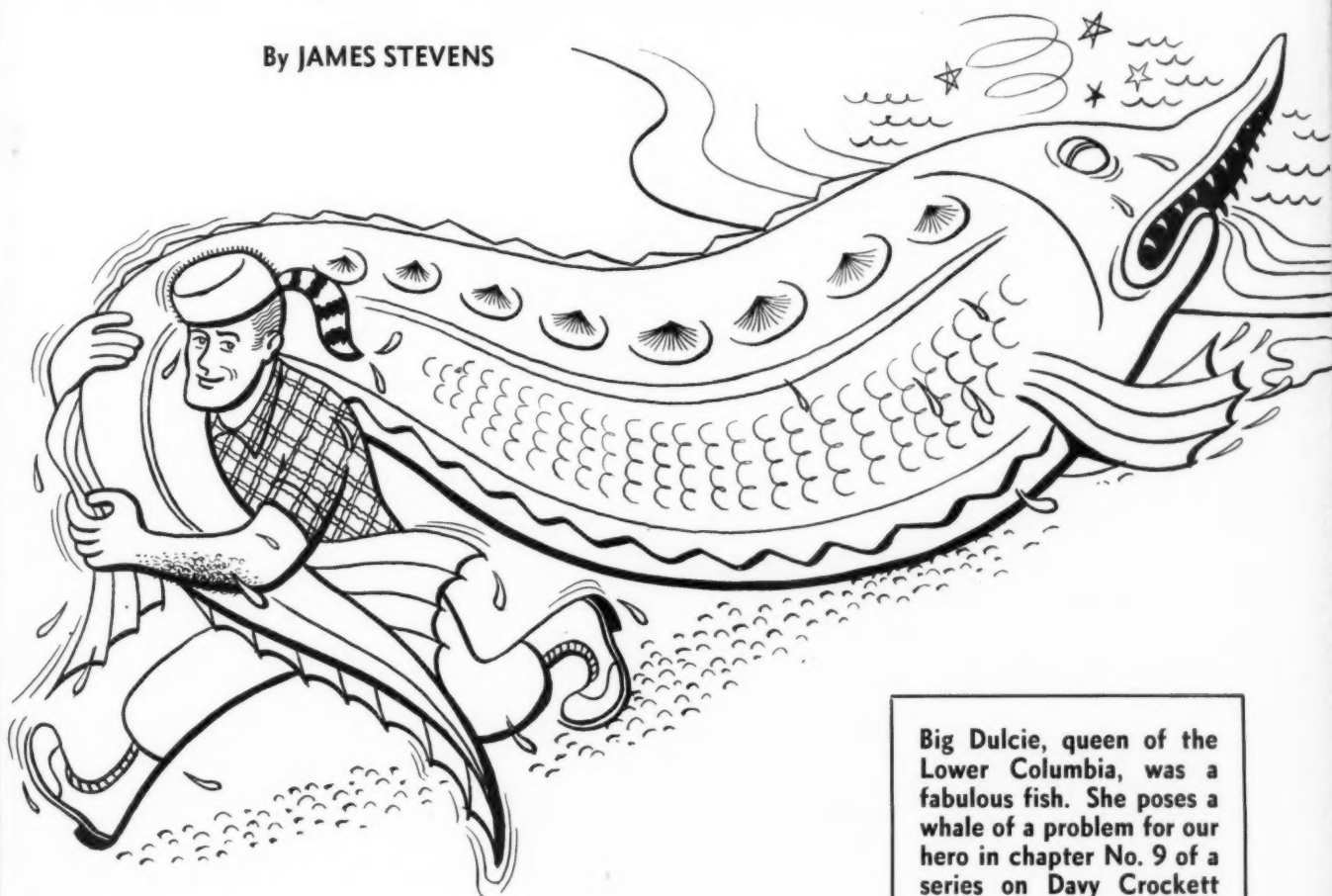
Man-caused fires often burn through the litter of the forest floor for days before they're spotted, but lightning stabs at prominent trees and flame bursts almost at once. When a patrol plane spots a lightning fire and radios its location, two or three trained smokejumpers parachute down, their axes, shovels and rations are dropped to them, and they may stop the blaze before it spreads more than a few yards.

Andy Brenneis, a veteran forester, cites another achievement of the aerial patrols. "Its prevention," he says. "You can't possibly figure the dollar value of the patrol planes in fire prevention." The very sight of



# DAVY and the STUPENJUS STURGEON

By JAMES STEVENS



Big Dulcie, queen of the Lower Columbia, was a fabulous fish. She poses a whale of a problem for our hero in chapter No. 9 of a series on Davy Crockett

**W**ELL along in the summer of 1904 Uncle Ben Cotter began to have trouble in meeting his bills, most of all in paying the wages due seven men, four horses and a boy for working his sawmill and logging outfit in the piney fringe of the Seven Devils Mountains.

"Draw poker," I heard Aunt Min Cotter tell Sue Makin, the hired girl. "Ever' time Ben hauls a load of lumber down to Weiser to sell he gits into a game of draw. I know him."

It worried me. I was the boy, a 12-year-old, holding my first job away from home. It paid four bits and board for a ten-hour day that often ran into 12, with such chores as helping the women in the cookhouse. Now I had nearly two months' pay coming. So did the others.

Then Uncle Ben came back from a haul of a wagonload of his best air-dried and dressed items to market

down on the River Snake. He was two days overdue.

"Had a time selling her for what she was worth," Uncle Ben said of his lumber. "Then luck turned bright, for not only did Dr. Reno Numbers buy the load as finish for his new house but he put me in with a rich surgeon who was visiting him from the East. This tenderfoot, he hankered for a Snake River sturgeon. I took him out and got him one. I tell you, and I'd take oath to it, that sturgeon was so much longer than the wagon bed that its tail drug the ground. I had to rig up a ginpole to tote its tail on the way to where the doc could get the sturgeon mounted."

It was a Saturday and sundown time. All hands had waited anxiously around the yard in front of the bunkshack until Uncle Ben had finished his supper. It was a powerful relief

to all when he came down with a buckskin sack of silver and gold and paid each man his due. Now all were pleased to hearken while he had his say.

Uncle Ben sat down on a pine block and picked his teeth for a minute. Then he said, "Reached a mite over 12 feet from sucker mouth to prong tail. Tipped the scale at exactly 1015 pounds. About 125 of 'em were roe for she was that kind of sturgeon. The surgeon paid me off at four bits, 50 cents a pound, and offered me a bonus. I but thanked him kindly and took my due."

"Is it yourself you're talking about, Uncle Ben?" asked a logger. "Or is it Davy Crockett?"

Back in the cookhouse Aunt Min had asked him exactly the same question when he came in with his story. He'd taken it good-naturedly then,

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# Etching Nature

A love for the outdoors has turned a hobby into a life's work for Minnie Briggs Raul, noted Washington artist



By FRANCES B. VERTIZ

SOME of us discover a hobby that lasts a few years, then interest wanes and we find another diversion more interesting. Others find a hobby that lasts a lifetime. But Minnie Briggs Raul's hobby of etching trees, which she began when very young, was so fascinating that it became her life's work.

A Washington, D. C. artist, Benson B. Moore, said of her, "There is no finer etcher of trees than Minnie Briggs Raul." Her etchings have won many prizes and are in permanent as well as private collections. One of her better known etchings, a wind-blown tree, was made to illustrate her poem "Capturing the Wind" and won first prize with the League of American Pen Women.

Born in southern Maryland in a house 200 years old, surrounded by trees, her first interest was in keeping a nature diary. As she began having parts of it published, she wished to illustrate it, and went to study with Benson Moore. When he saw her many drawings, he asked, "Why not make etchings of these?" And giving her an etching needle he guided her step by step while she drew a winter oak on her first plate. The thrill of pulling that first print, she says, will stay with her always.

Immediately she decided to make etchings of all the trees, flowers and birds she had identified. And even now the hours are too short for her to keep abreast of all the work she would like to do on that assignment.

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Mrs. Raul finds inspiration in the simplicity of nature. To her, "Exquisite architecture in brown oak leaves, in winter woods is the hornet's nest"



"A tree on a quiet day, a poem; in the wind, it becomes a symphony," expresses the artist's mood



# NEW PIONEER on the OREGON TRAIL



**GANGWAY FOR THE CHAMP!** There goes International's big red TD-24 "bobtailing" two Douglas fir logs by lines fastened to the butts. With its 148 drawbar horsepower, the champ makes even tough jobs look easy.

## Read how the International TD-24 tackled 12,000,000 board feet of virgin timber, did "best job ever" for F. & G. Logging Co.

Virgin timber on the Oregon Trail—in rough country never profitable to log before—is a pushover for International's Big Red Champ, the TD-24.

Take the F. & G. Logging Company. Their big International TD-24 built roads into a 12,000,000 board-foot tract. Now it skids out 150,000 board feet of logs a day.

Owner Forrest Solomon gives the low-down: "We use Internationals because they stand up better under hard use. And the service we get from our International Industrial Distributor is perfect!"

Operator Ray Baird adds: "The TD-24 handles in the woods on

sharp turns and steep grades as easy as a smaller tractor, but it gets lots more work done.

"It's by far the best of any tractor, big or small, for road building in these mountains. It's got the most power, and it dozes faster, too—makes longer passes with more dirt.

"I've run 'em all, and it's the TD-24 for me from now on!"

That's the word that's going around the logging camps. Ask your friends who own TD-24s. Ask your International Industrial Distributor for the inside story. You'll be a TD-24 man from then on yourself.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

# INTERNATIONAL



# POWER THAT PAYS



# REPORT ON AMERICAN BIG TREES

In September 1940, The American Forestry Association launched a campaign to locate the largest living specimens of American trees. After ten years of diligent search by cooperating individuals, the following list of "champions" is being run serially until completed. Common and botanical names listed conform to "Standardized Plant Names" issued by the American Joint Committee on Horticultural Nomenclature. Identification and measurements are by nominators. The challenge is to locate trees larger than those listed, if they exist, and also giants of species not listed. Send all reports to The American Forestry Association, 919 Seventeenth Street, N. W., Washington 6, D. C.

## Part VI—Conclusion

Species	Circumference at 4½ feet	Spread	Height	Location of Tree and Nominator
<b>REDWOOD</b>				
<i>Sequoia sempervirens</i>	62'8"	—	308'	Maple Creek, Humboldt County, California. Emmanuel Fritz, Berkeley.
<b>RHODODENDRON</b>				
Coast, <i>Rhododendron macrophyllum</i>	2'2"	22'	26'	Takhenich Forest Camp, Siuslaw National Forest, Oregon. Oliver V. Matthews, Salem.
<b>ROYALPALM</b>				
Cuban, <i>Roystonea regia</i>	4' (at 4')	12'	95'	Collier Seminole State Park, Naples, Florida. Wilbur F. Smith, South Norwalk, Connecticut.
<b>SASSAFRAS</b>				
Common, <i>Sassafras albidum</i>	15'8"	52'	65'	Near Madison, New Jersey. S. Glidden Baldwin, Danville, Illinois.
<b>SEQUOIA</b>				
Giant, <i>Sequoia gigantea</i>	101'6" (base)	—	272'	Sequoia National Park, California. Isabelle F. Story, Washington, D. C.
<b>SERVICEBERRY</b>				
Pacific, <i>Amelanchier florida</i>	2'9"	—	—	Near Lyons, Linn County, Oregon. Oliver V. Matthews, Salem.
Shadblow, <i>Amelanchier canadensis</i>	7'7"	45'	50'	Near Northfield, Delaware County, New York. H. H. Chapman, New Haven, Connecticut.
<b>SILVERBELL</b>				
Mountain, <i>Halesia monticola</i>	11'9"	—	—	Great Smoky Mountain National Park, Tennessee. Stanley A. Cain, Knoxville.
<b>SOAPBERRY</b>				
Western, <i>Sapindus drummondii</i>	5'7"	30'	45'	Carnegie, Oklahoma. Floyd Clay, Alfalfa.
<b>SOURWOOD</b>				
<i>Oxydendrum arboreum</i>	6'4"	30'	85'	Great Smoky Mountain National Park, Tennessee. S. Glidden Baldwin, Danville, Illinois.
<b>SPRUCE</b>				
Brewer, <i>Picea breweriana</i>	12'2"	—	—	Near Miller Lake, Oregon. Oliver V. Matthews, Salem.
Colorado, or Blue, <i>Picea pungens</i>	11'9"	—	123'	Gunnison National Forest, Colorado. Fred R. Johnson, Denver.
Engelmann, <i>Picea engelmanni</i>	19'11"	30'	104'	Cache National Forest, Idaho. Jay B. Hann, Paris.
Norway, <i>Picea excelsa</i>	26'8"	59'	90'	Coventry, Connecticut. H. H. Chapman, New Haven.
Red, <i>Picea rubens</i>	14'1"	—	75'	Great Smoky Mountain National Park, North Carolina. Verne Rhoades, Asheville.
Sitka, <i>Picea sitchensis</i>	50'	—	150'	Near Beaver, Washington. T. J. Starker, Corvallis, Oregon.
White, <i>Picea glauca</i>	8'9"	—	—	Ontonagon County, Michigan. William P. Nicholls, Houghton.
<b>SUMAC</b>				
Shining, <i>Rhus copallina</i>	1'1"	18'	27'	Dunes State Park, Indiana. Kendall Laughlin, Chicago, Illinois.
Smooth, <i>Rhus glabra</i>	2'6" (base)	—	45'	Homochitto National Forest, Mississippi. Herbert P. Rice, Rolling Fork.
Staghorn, <i>Rhus typhina</i>	2'6"	32'	22'	Kansas City, Missouri. A. E. Shirling, Kansas City.
<b>SWEETGUM</b>				
American, <i>Liquidambar styraciflua</i>	14'7"	101'	71'	Near Easton, Maryland. F. W. Besley, Baltimore.
<b>TORREYA</b>				
California, or California-nutmeg, <i>Torreya californica</i>	14'10"	39'	141'	Near Mendocino, California. Edward Simons, San Francisco.
<b>TULIPTREE; YELLOW POPLAR</b>				
<i>Liriodendron tulipifera</i>	26'6"	98'	83'	Annapolis, Maryland. F. W. Besley, Baltimore.

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## SELECTED BOOKS ON FORESTRY AND RELATED FIELDS OF CONSERVATION

### TREES

A First Book of Tree Identification—Rogers .....	\$ 2.50
A Natural History of Trees of Eastern & Central North America—Peattie .....	5.00
Handbook of the Trees of the Northern States and Canada—Hough .....	5.50
Maintenance of Shade and Ornamental Trees— Pirone .....	6.50
The Arboretums and Botanical Gardens of North America—Wyman .....	1.50
The Home Book of Trees and Shrubs—Levison .....	10.00
The Trees of Pennsylvania—Grimm .....	5.00
Tree Trails and Hobbies—Cater .....	3.50
Trees—Yearbook of Agriculture—1949—U.S.D.A. ....	2.00
What's That Tree—Appleton .....	.25

### GENERAL FORESTRY

An Introduction to American Forestry—Allen .....	\$ 4.00
Bernard Eduard Fernow—A Story of North Ameri- can Forestry—Rodgers, III .....	7.50
Fifty Years of Forestry in the U.S.A.—Winters .....	4.00
Forests and Men—Greeley .....	3.00
Indian Forest and Range—Kinney .....	4.50

### FOREST MANAGEMENT

Aerial Photographs in Forestry—Spurr .....	\$ 6.00
Applied Silviculture in the U. S.—Westveld .....	6.00
Forest Management—Chapman .....	6.00
The Management of Farm Woodlands—Guise .....	4.00

### MENSURATION AND VALUATION

Forest Mensuration—Bruce & Schumacher .....	\$ 5.00
Forest Valuation—Chapman & Meyer .....	6.00

### WOOD—ITS MANUFACTURE AND USE

A Concise Encyclopedia of World Timbers— Titmuss .....	\$ 4.75
Farm Wood Crops—Preston .....	3.75
Forest Products—Brown .....	5.00
Harvesting Timber Crops—Wackerman .....	5.50
Logging—Brown .....	5.00
Lumber—Brown .....	4.25
Textbook of Wood Technology—Brown, Panchin & Forsyth .....	6.00
The Coming Age of Wood—Giesinger .....	3.50
The Mechanical Properties of Wood—Wangaard ....	6.00

### PLANTING OF TREES AND FORESTS

Plant Buyers Guide—Steffek .....	\$ 7.50
Principles of Nursery Management—Durez .....	3.50
Propagation of Trees, Shrubs and Conifers—Sheat ..	7.50
Woody-Plant Seed Manual—Forest Service, U.S.D.A. ....	2.75

### FOREST PESTS AND FOREST FIRES

Fire—Stewart .....	\$ 3.00
Forest Pathology—Boyce .....	6.00
Insect Enemies of Eastern Forests—Craighead .....	2.50
Our Enemy The Termite—Snyder .....	3.50

### NATIONAL PARKS

Exploring Our National Parks and Monuments— Butcher .....	\$ 4.00
My Camera in the National Parks—Adams .....	10.00
My Camera in Yosemite Valley—Adams .....	10.00
Steve Mather of the National Parks—Shankland ....	4.00

### CAMPING AND RECREATION

Field Book of Nature Activities—Hillecourt .....	\$ 3.95
How to Live in the Woods—Halsted .....	2.75

## THE BOOKSHELF

Our Eastern Playgrounds—A guide to the National and State Parks and Forests of our Eastern Seaboard—Merrill .....	\$ 3.75
The Book of Nature Hobbies—Pettit .....	3.50

### BIRDS, WILDLIFE, FISHING AND HUNTING

A Field Guide to the Birds—Peterson .....	\$ 3.50
An Introduction to Birds—Kieran .....	2.50
Audubon's Birds of America—Griseom .....	2.95
Birds of Prey of Northeastern North America— Hausman .....	3.75
Fishing Flies and Fly Tying—Blades .....	7.50
Fresh Water Fishing—Carhart .....	5.00
Game Management—Leopold .....	7.50
Mammals of North America—Cahalane .....	7.50
Northwest Angling—Bradner .....	5.00
Our Desert Neighbors—Jaeger .....	5.00
The Fisherman's Encyclopedia—Gabrielson & La- monte .....	12.50
The Land and Wildlife—Graham .....	4.00
The Saga of the Waterfowl—Bovey .....	5.00

### FLOWERS, GARDENING AND LANDSCAPING

American Wild Flowers—Moldenke .....	\$ 6.95
American Wild Flowers—The Illustrated Encyclo- pedia of—Hausman .....	2.49
How to Landscape Your Grounds—Johnson .....	3.50
Shrubs and Vines for American Gardens—Wyman ..	7.50
Wild Flower Guide—Wherry .....	3.00

### MISCELLANEOUS

American Resources—Whitaker & Ackerman .....	\$ 6.75
America's New Frontier—The Mountain West— Garnsey .....	3.50
Big Hugh—the Father of Soil Conservation—Brink ..	2.75
Big Jim Turner—Stevens .....	3.00
The Book of the States—Smothers & Cotterill .....	7.50
The Cascades—Mountains of the Pacific Northwest —Peattie .....	5.00
Conservation in the U. S.—Gustafson, et al .....	5.00
Conservation of Natural Resources—Smith .....	6.00
Elements of Soil Conservation—Bennett .....	3.20
Encyclopedic Dictionary of the Holy Bible—Jenkins ..	4.00
Hunger Signs in Crops—A Symposium—Amer. Soc. Agronomy et al .....	4.50
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This list of Selected Books is a service of The American Forestry Association to its members. Members ordering books through the Association are entitled to a 10% discount from published prices.

# REPORT ON AMERICAN BIG TREES

(From page 28)

<b>TUPELO</b>				
Black, or Blackgum, <i>Nyssa sylvatica</i>	13'	—	85'	Langly, Fairfax County, Virginia. Robert H. Jackson, Washington, D. C.
<b>VIBURNUM</b>				
Blackhaw, <i>Viburnum prunifolium</i>	1'9"	14'	28'	Glen Mills, Pennsylvania. S. Glidden Baldwin, Danville, Illinois.
Nannyberry, <i>Viburnum lentago</i>	5'	35'	22'	State College, Pennsylvania. H. H. Arnold, State College.
Rusty Blackhaw, <i>Viburnum rufidulum</i>	1'4"	19'	16'	Bennett Spring State Park, Dallas County, Missouri. Kendall Laughlin, Chicago, Illinois.
<b>WALNUT</b>				
Eastern Black, <i>Juglans nigra</i>	20'3"	128'	108'	Anne Arundel County, Maryland. F. W. Besley, Baltimore.
California Black, or Royal variety, <i>Juglans californica</i> var. <i>regia</i>	17'6"	137'	118'	Santa Rosa, California. Mrs. Julia Miller, Santa Rosa, California.
<b>WAXMYRTLE</b>				
Pacific, or California, <i>Myrica californica</i>	3'7"	—	—	Near Port Orford, Curry County, Oregon. Oliver V. Matthews, Salem.
<b>WILLOW</b>				
Black, <i>Salix nigra</i>	19'7"	50'	85'	Near Woodville, Ohio. O. E. Files, Toledo.
Crack, or Brittle, <i>Salix fragilis</i>	11'10"	71'	55'	Chechupinqua Woods, Cook County, Illinois. Kendall Laughlin, Chicago.
Peachleaf, <i>Salix amygdaloides</i>	4'6"	34'	50'	Dunes State Park, Indiana. Kendall Laughlin, Chicago, Illinois.
Pussy, <i>Salix discolor</i> var. <i>eriocephala</i>	2'5"	26'	20'	Chechupinqua Woods, Cook County, Illinois. Kendall Laughlin, Chicago.
Ward Coastplain, <i>Salix longipes wardi</i>	2'11"	25'	18'	Caddo River, Glenwood, Arkansas. Kendall Laughlin, Chicago, Illinois.
White, <i>Salix alba</i>	23'6"	75'	85'	Near Winona, Ohio. F. Merrick Semans, North Jackson.
<b>WITCHHAZEL</b>				
Common, <i>Hamamelis virginiana</i>	2'	24'	21'	Windom, North Carolina. James Hutchins, Windom.
<b>YELLOWWOOD</b>				
American, <i>Cladrastis lutea</i>	12'2" (at 3')	—	—	Lawrenceville, New Jersey. C. W. Schisler, Trenton.
<b>YUCCA</b>				
Joshuatree, <i>Yucca brevifolia</i>	11'	30'	40'	Near Lancaster, California. San Antonio Club, Alhambra.
<b>YEW</b>				
Pacific, <i>Taxus brevifolia</i>	12'7"	—	—	Near Cherry Grove, Oregon. Oliver V. Matthews, Salem.

## Etching Nature

(From page 26)

Almost always she carries a pencil and pad with her to capture any bit of nature's beauty of which she might catch a glimpse: a hornet's nest, artistic acorns, dogwood berries, pussy willows, a wildflower or a tree. She has recorded much of nature from the Great Lakes to the Everglades of Florida. Many areas were visited in search of famous and unusual trees and others she sketched when pausing along the way. While looking at a collection of her beautifully finished and mounted etchings, she will remark when glimpsing an old broken tree, "There's one that began on the back of an envelope when we (she and her sculptor husband) stopped for gas on our way down from New York."

The desire to get her feeling for the outdoors into her work is the reason she prefers drypoint to acid bitten lines. In any etching the first step is to cover a metal plate (copper, aluminum or zinc) with an etching ground.

It is made up principally of Egyptian asphaltum, Burgundy pitch and bees wax and is rolled on the slightly heated plate with a roller or dabber. Then the plate is smoked with a taper. The drawing is traced on the plate with a hard pencil over a pencil carbon. The picture is then drawn through the ground with an etching needle which has a steel or ruby point. The plate is given an acid bath in a solution of one-third nitric acid and two-thirds water.

The acid eats into the plate on the lines where the metal is exposed, bubbling and biting until the line is deep enough to hold ink. The acid gives a beautifully clean line. Light lines may be painted out with stopping out ground and the dark lines may be bitten longer. The ground is then removed from the plate and the plate is inked, rag and hand wiped, and run through the press on dampened paper. The print is dried between blotters and then signed.

In drypoint, the same procedure is followed except that no acid is used. Instead the picture is drawn into the plate with a sharp drypoint needle and the pressure can be controlled to throw up a fine bur to hold a small

(Turn to page 33)



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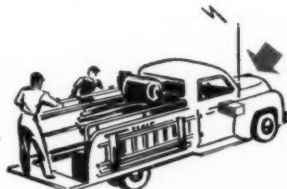


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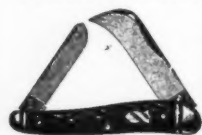
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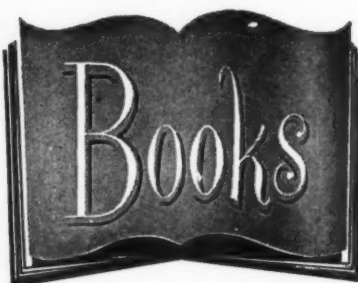
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**The Chemistry and Action of Insecticides,** by Harold H. Shepard. Published by The McGraw-Hill Book Company, New York, New York. 604 pages, illus. Price \$7.

The chemical and physical properties of insecticides and their effects on insects, plants, and higher animals are discussed in this text. To make it more complete as a reference the author has included many uses outdated by more efficient developments, and presents a discussion of new insecticides now being experimented with in recent research. The author treats his material in a manner simple enough to be of use in the classroom, and yet remains theoretical enough to be of value in future insecticide research.

**Proceedings of the Alaskan Science Conference of the National Academy of Sciences National Research Council.** Published by the National Research Council, Washington, D. C. 216 pages. Price \$2.

A record of the proceedings of a three-day conference on scientific research in Alaska held in Washington in November, 1950, for the purpose of stimulating interest in research in the Alaska area. The group, composed of nearly 400 scientists, discussed ways and means of assisting each other in research in the subarctic and arctic regions, and methods of assisting those planning future research in Alaska. A complete resume of their suggestions and accomplishments are covered in this text, and should prove of value to anyone interested in this area.

**The Elk of North America,** by Olaus J. Murie. Published by Stackpole and Heck, Inc., Harrisburg, Pennsylvania. 376 pages, illus. Price \$6.50.

Recognized as the world's foremost authority on the American elk, Dr. Murie has presented in this volume the results of his comprehensive research on elk in the Jackson Hole National Monument. Having spent a lifetime in intimate study of his subject, the author discusses the elk's habits, food preferences, seasonal movements, anatomy, antler development and management problems. Half tone and line drawings by the author render the reader a more complete understanding of this most widely hunted of big-game animals in America.

**How to Retire to California,** by Aubrey Drury. Published by Harper and Brothers, New York, New York. 194 pages. Price \$2.50.

Based on the premise that every family is interested in early selecting a home for the years of retirement, Mr. Drury has made a survey among hundreds of families from all sections of the country who have already settled in California. He very adequately discusses specific questions which will arise—the ready cash needed, the steady income necessary, the real estate situation, where and how to move, what to take and what to leave behind, the health factors, and numerous other topics of essential information.

**Audubon Water Bird Guide,** by Richard H. Pough. Published by Doubleday and Company, Inc., Garden City, New York. 352 pages, illus. Price \$3.50.

Sponsored by the National Audubon Society and written by an authority in the field of ornithology, this field guide will prove invaluable to the layman who has any degree of interest in birds of eastern and central North America. Vivid color illustrations by Don Eckelberry and black and white line drawings by Earl L. Poole, provide an additional visual guide in identifying birds of this area. Pough's biographies provide not only points on identification, range, mating habits, and where located, but also gives information on the past and present status of birds, their foods, habits, and methods of attracting them. A unique index provides a cross reference to the colloquial names of the birds.

## Etching Nature

(From page 30)

amount of ink or a heavy one to reproduce a velvety black line. It is with this contrast that more feeling is acquired.

The result is a likeness that portrays more than a person would ordinarily see in the model. Because Mrs. Raul listens and feels as she draws, the atmosphere of wind or cold, singing birds, sunshine or buzzing bees seems to become a part of the etchings. Yet she believes the sketch alone is not enough and writes a bit about each one to round out all that her keen perception has associated with a setting.

While she first sketched trees for their dramatic beauty, she found that many had a historical background that endeared them to communities, cities and countrysides. Since her home is in Washington, she has sketched most of the capital's famous trees, including the Treaty Oak, L'Enfant Cedars, Tally-Ho Locust, the Sheep Shearing Oak and the Theodore Roosevelt Pine. Several series of these have run in Washington's *Sunday Star*. However, she has a special fondness for broken and twisted trees that have struggled for existence. This she feels is their chief charm.

Equally praiseworthy are Mrs. Raul's colored etchings of wildflowers. Charles Val Clear, Director of the Art League of Washington wrote in the *Art Journal*, "While Minnie Briggs Raul does powerful delineations of nature in its broader aspects . . . it is in her delightfully detailed and charming studies of wildflowers she excels." They are lovely beyond description and attention is given to each minute detail.

The numerous phases of her work occupy so much of her time that little leisure is left. It is no wonder, for old houses have also won her attention as well as grasses and windy scenes. And in addition she illustrates books for others.

Mrs. Raul has compiled and published some of her work in book form, with the title "Go, Lovely Road," featuring 20 etchings on wild flowers of the Holy Land. Now she has plans for publishing another volume, under the same title, devoted to trees.

When Minnie Briggs Raul chose a hobby she could not have selected one more suitable for her, for she has a love for the outdoors in her heart.

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How many of the 11,000 Americans who die in fires annually live on the nation's farms?

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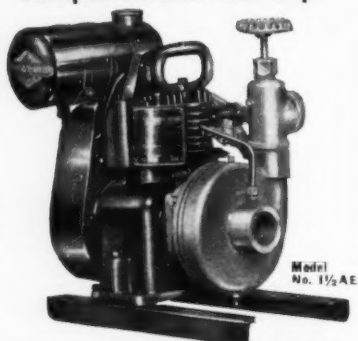
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## Two Men and a Rock

(From page 15)

timed to build and maintain Idaho schools. Munson saw flames licking at timber he had just acquired for that purpose the day before.

"Because fire is no respecter of ownership we've got to have a fire fighting organization that isn't bothered either," Fohl reasoned. Sitting on the rock talking, their conversation became the pattern of such an organization.

Thus was born the Clearwater Timber Protective Association and its slightly younger twin, the Potlatch Timber Protective Association. Together they look after the safety of the trees, build roads, maintain phone lines, handle brush disposal and do a score of other maintenance jobs on 1,500,000 acres of white pine forest, the source of three-fourths of the nation's supplies of these valuable home-building woods.

Fohl and Munson dreamed of speed in getting men to a fire. Today that speed is a reality. Curtis has gotten 1400 men to a fire within four hours. Mostly they have come from logging camps within the area. He's pretty sure he could have 125 'dozers on any fire within a day. In addition, he could have at least 2500 men.

Fire fighting is coordinated by walkie-talkie radio sets and the "Big Voice." Everyone on the fire line can hear Curtis as he flies over at 500 to 2000 feet and talks through the high-powered loudspeaker capable of carrying a human voice across a three-mile canyon. Able to see the whole fire line, the man in the plane can direct his forces in the most effective manner. Dozens of times the "Big Voice" has been used to guide ground crews to fires they couldn't see until they were upon them.

Curtis was an overgrown kid of 16 when Fohl picked him as a potential forester. Bert was hoeing beans for a dollar a day in his home town of Orofino, Idaho, when the chief warden of the country's first timber protective association stopped.

"Kid," he asked, "want to go out and fight some fires?"

"You betcha."

Young Curtis ran all the way home. "Mr. Fohl wants me to fight fires," he told his mother. Her only comment was, "Be careful, son."

Bert grabbed his calked boots, some clean sox, his .22 rifle and headed for the Clearwater woods. He's been there ever since.

But for another demonstration of Fohl's ingenuity, Curtis wouldn't be around today.

Day and night for nearly a week, Fohl and a crew had been on the fire line on Beaver creek, a two-mile hike from Pierce. Everything then was hand labor. Bert was chopping snags when his ax stuck in a log. As he pulled it out it flew back into his face, slicing his nose wide open. Blood was streaming down the ashes and grime on his face as he staggered out.

"I fix you," the stocky German declared. Taking the bleeding lad to a spring he washed his face, the first cleaning it had received in a week.

Then Fohl started up the hillside. Soon he came back with a fistful of leaves. These he worked into a pulpy mass. Out of it he made a poultice. Pulling the edges of the gash together he slapped on the pulp. Ripping off a piece of his shirttail he made a bandage.

"The soreness left that night," Curtis relates. Next morning he was back on the fire line.

Both Fohl and Munson are gone but the rock remains—six airline miles northeast of headquarters, lively center of logging operations. From the rock one still can look across one of the nation's greatest white pine producing areas—a region where 1000-acre timber sales are common and where you need not be an expert timber cruiser to pick stands where 40 acres will carry \$50,000 worth of the big pines.

"Every state with forest lands reflecting the crazy-quilt pattern of public and private ownership seen along the Clearwater has some kind of a cooperative defense organization," Curtis declares. "All have been patterned along the lines of that conversation on the big rock."

In the early days of fire fighting it was a major news story in a Moscow, Idaho, newspaper when Munson started out with ten men to fight fires in the Clearwater country. Four days of hiking lay between them and their job.

But there wasn't even a headline last fall when Curtis threw 300 men and 14 'dozers, each easily equal to a hundred men in throwing a fire line, and five tank trucks at one fire in three hours. Things like that are just routine today.

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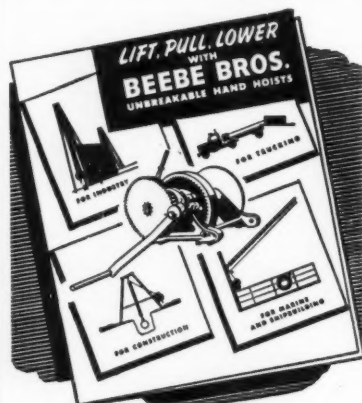
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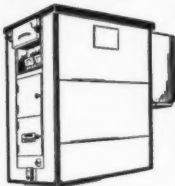
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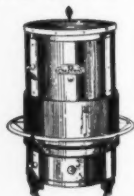
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## Davy and the Stupenjus Sturgeon

(From page 25)

and he did now. In a minute he was off on the cue, with another yarn about Davy Crockett's adventures in the old Oregon country as it was in the days before the covered wagons.

My surgeon's sturgeon is stupenjus as the breed goes nowadays (Uncle Ben Cotter went on to tell). But it would have been considered a runt on the Lower Columbia River back in the day when Davy Crockett followed Lewis and Clark and tamed the country so's to make it fit for settlement. One mighty stumbling block was Big Dulcie, a grandma sturgeon who was old enough to have quit sea-going and upstream spawning but young enough to loom as a threat to river navigation for years to come.

Dulcie (it was Davy himself who named her) was no kind of carnivorous monstereous critter such as Davy had been bucking up against in his other tries at cleaning up the Oregon country. She was only too big for her own good and the good of others. Let her hear a commotion of Indian war canoes above her, and come to surface from curiosity, then the canoes she'd upset and the waves she'd set going would drown out an entire tribe. Dulcie had no teeth, of course, and she sucked in her meals, sturgeon style. One big feed off the river bottom would leave a hole to keep a whirlpool running for a week.

Back on the Mississippi youthsomely Davy Crockett had been warned by old sailors:

"If you are fool enough to make for Oregon, keep away from the Lower Columby. There are wolf trees on the banks and sturgeons in the stream. The queen sturgeon is worse than all the rest put together. She has a craw that is the equal of any rock crusher. She'll turn you to dust. Stay home, young man, and grow up!"

She meant no harm in her heart, the sailors said. When a sailing ship would roll in over the bar it looked to the hugeaceous sturgeon as a critter that was just her size for a playmate. When a cannon was fired at her the ball would only bounce from the bony armor plate of her scales and spine plates, giving her a tickle and no more. Then she'd suck in air till it would pull the ship over on its nigh side, and right away spout out a blast fit to turn the ship back over to its off side. Back and forth the ship'd go as she played her game, until sailors who'd gone through typhoons without getting seasick would feel their innards crawl for daylight.

Davy Crockett had hearkened and took note. He knew the sturgeon breeds of his parts and the North and East—the rock, the rubbernose, the shovelhead, the switchtail, the hackle-back and the sand sturgeons. He knew how angelicalorous different all were from their evil kinfolks, the alligator gars of the Mississippi. Davy expected the gars were the biggest river fish on earth. Surely none could be more wicked in their ways. Pizen, too. Davy had seen buzzards keel over and turn up their claws from no gorging but simple swallows of alligator gar eggs. He had a pair of gloves studded with the teeth of an alligator gar. With them on he could throw away Killdevil, his rifle, and Big Butcher, his knife, and out-bite a panther or out-claw a bear.

He had them on the morning when he first laid eyes on the queen sturgeon and gave her the name she is remembered by. And at the same time Big Dulcie spied him. She had been roaming up river to the Cascades and was on her way back home in the tidal river. What she saw was so amazing that she stood on her tail, rearing out of the water, her spout mouth agape and her kind and humorous eyes a-bulging.

For Davy Crockett had his pack of wolf trees out on a flat stretch of bank, making them drill like soldiers. He figured the Oregon country was fairly well cleared up of all dangers but the British, and he aimed to go for them.

The wolf trees saw her, too, and shivered like quaking aspens in the morning sun.

Davy Crockett knew fear as he had never known it before but he let no sign of it show. He made an about face, roared, "Forward—march!" and drilled his company on. Where a wolf tree would stand shivering in his tracks, Davy would rake it down with a glove studded with alligator gar teeth until the critter would faunch and howl back into the line of march.

It was tough treatment, and Davy was sorry for it, but the Oregon country was at stake and he was bound to save it for Hail Columbia, no matter whose feelings were hurt. He would do anything to stave off the British. And as he pondered the grim fact that what the old sailors had told about the queen sturgeon was true, Davy Crockett saw it was his bounden duty to do anything to make the Columbia River safe for navigation. The settlers would need the naviga-



tion, no doubt about it.

Right soon Big Dulcie had to go under for a breath of water. The day wore away with a kind of game of hide and seek going on, the enormous sturgeon rearing up and going down; now here, now there; up to shore, far away, downstream, upstream, roundabout; until Davy gave up his drilling and simply looked and pondered.

The wolf trees stood on their flat heads for a much-needed rest as the day sank into afternoon. Davy Crockett, appearing mighty grim for his years, took out for the bank, following up a notion. It was how he might use himself somehow as human bait to catch Big Dulcie. He knew that he was no Jonah—if once she should swallow him under he was a goner, for surely he would drown. Davy was primed to give his life for his country if it would do some good, but work with Big Butcher inside Big Dulcie under water would not be so simple as his work had been inside Old Boo, the mammoth buff. He had to think of something. Something else.

Davy got himself so lost in thought that he did not see the queen sturgeon come up close to the bank until she gave a kind of cough and cleared

her throat yonder. He took a glance so quick his eyeballs burned from friction and saw his mortal peril. Whatever the power was in him that would even cast a spell on the wildest life of the woods and the waters, it was working on Big Dulcie as he had never seen it work before. Her eyes shone on him, as bright as her scales. Her mouth like a barn door was puckered up. She sucked in a sigh and it took Davy off his feet and sailed him aloft. She sighed out and turned him over and set him down on the bank again. Davy tottered over to a cedar, a great tree. He heard another sigh coming and he clutched the cedar's trunk with all his might.

And he held on. The suction tore off his boots and well-nigh unjointed him but the tree stood and his hands held fast to it. They held because of the gloves studded with gar teeth and rawhided to his wrists.

Then the bole broke well above Davy's head. It fell with a thunderous shatter. The fall broke the top away and slivered the trunk down to free Davy's hands. He staggered clear to see the sturgeon diving down and foaming away from the roar and splash of the giant cedar's top in the river. The main bole rocked on the

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(Photo: U.S. Forest Service)

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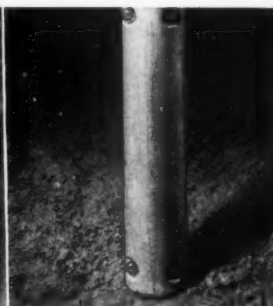
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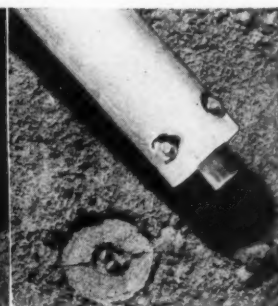
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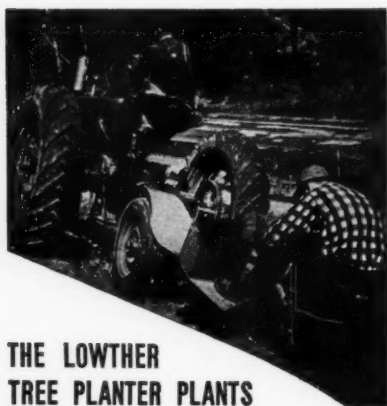


3. Plunger pushes  
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bank, slanting down to the stream. It was a huge hollow log.

Davy Crockett had another notion as he stood there with aching joints and relief to be alive. He went to work on it with broadax, knife, rope, and gar-teeth gloves until night stopped him and he was up and at it again in dawn light. By the time Big Dulcie came around again Davy was primed and ready for her.

At the small end of the cedar the hollow was only large enough for Davy to poke his head out. But that was enough for Big Dulcie to see. She came rearing up as close to the bank as she could venture. Davy braced himself for another two-way blow.

It was do or die for Davy Crockett, as never before. He had himself roped fast inside the cedar. The wind came down the hollow like a tornado, but Davy himself was not budged from his anchorage. A lull, and then the real blow struck. The cedar shuddered, its ring of timber around the hollow shivered and cracked—and then it sailed. Up it was buoyed and pulled in the most hurricanellous of all the gasps ever drawn by the queen sturgeon of the old Columbia. Davy got his bearings. He could see ahead. He saw the maw of Big Dulcie squarely before him—then the cedar stopped with an almighty shock—and all went black around Davy.

But he kept his senses. He felt the ropes yank into his hide with the shock. Then he cut himself loose with Big Butcher and commenced to climb, clawing up the hollow with the gar-teeth gloves. When he came up into daylight the sturgeon was floundering, rolling in the river, the spreading butt of the hollow cedar a float that held the head of the great fish at the surface. It had the spout mouth stoppered tight. Inside the mouth the snags of the limbs were caught like hooks.

Davy Crockett climbed out and aloft on a slab of the butt. So he rode in triumph down the river. The wolf trees howled. The Indians whooped and hollered. They came out in their canoes for Davy Crockett when Big Dulcie piled up on the bar and lay there, still stoppered by the cedar tree, awash and still.

And at last navigation was free and clear on the Columbia River. . .

Next day I told Aunt Min Cotter the history I'd heard from Uncle Ben.

"Might be," she said. "Wonders never cease. Now I'll tell you the biggest one of all. Ben Cotter didn't get that silver and gold for catching a fish. For once in his life he made a killing at draw poker."



## Save-the- Redwoods

Send 10 cents each for these attractively illustrated pamphlets: "A Living Link in History," by John C. Merriam... "Trees, Shrubs and Flowers of the Redwood Region," by Willis L. Jepson... "The Story Told by a Fallen Redwood," by Emanuel Fritz... "Redwoods of the Past," by Ralph W. Chaney. All four pamphlets free to new members—send \$2 for annual membership (or \$10 for contributing membership).

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## PUBLIC WASTE NO. 1

AMERICAN FORESTS Magazine is pleased to carry on the 2nd cover of this issue, the four-color Forest Fire Prevention message of ALLIS-CHALMERS MANUFACTURING COMPANY.

This advertisement was called to the attention of the Forest Service, United States Department of Agriculture, and here is what Mr. Clint Davis, Director of Forest Fire Prevention has written us:

"ALLIS-CHALMERS is to be commended for this excellent job of public service advertising. The advertisement carries a very forceful Forest Fire Prevention message. The wide coverage being given this message, and the timeliness with which the company has planned its use, makes it a valuable contribution in the drive to reduce man-caused forest fires. It is an outstanding example of American business using its advertising space in the public's interest."







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or airport. Wives welcome at half rate.  
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Gallatin Gateway, Montana

## Ailing Woodlots?

(From page 12)

by combining their volume, they received \$23 a thousand—thus gaining all the benefits of a cooperative without any of the red tape, dues, attendance at meetings and other time-consuming requirements of a cooperative.

**Charcoal.** One problem the Foundation has faced is finding means of meeting the cost of improvement operations which few small owners can finance. New England woodland contains an immense amount of low-grade material which cannot be sold as timber or pulp. It has just gone to waste. To utilize this material, the Foundation has turned to making charcoal and, to provide a market, has assisted in the organization of a privately-owned marketing company. Then the woodland owner had to be sold the idea that although he would not make much money from charcoal operations, he would receive enough to pay for improving his forest. It would probably be a break-even proposition. In addition, his timber would grow much more rapidly; insect and disease damage as well as the fire hazard would be greatly reduced. It is estimated that improvement cutting will increase the annual growth as much as 100 board feet on an acre of well stocked woodland. This additional growth is worth about \$1 per acre which capitalized at 5 percent should increase the investment value by \$20 per acre. The Foundation experimented with a few kilns a year ago and the operation was so successful that this year 12 kilns are in operation, and it is expected that some 50,000 bags of charcoal will be produced.

The Foundation carries out this project in three ways: the owner can cut the timber and operate the kiln under the supervision of the Foundation, which supervises the marketing, too; the Foundation manages and operates the entire activity; or a private operator finances the kilns and their operation, under the direction of the Foundation. The project is only a year old, and thus it is still somewhat experimental in practice.

**Production Fund.** Another problem is that of the small owner whose woodlot is in need of management, but who is unable to finance the operation because of the small amount of marketable material to be removed. The Foundation has arranged for the financing of such operations, and has set up a production fund for

## APPLICATION FOR MEMBERSHIP

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—Sent to members every month. It increases one's understanding and enjoyment of nature and the outdoors. Presents important conservation questions and issues.

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the purpose. Loans are made from this fund to finance the work which is handled entirely by the Foundation working as agent of the owner. Materials harvested will be integrated so that pulpwood, for example, will be sold as such, poles as such, and the same with piling and firewood. Thus the Foundation will obtain the highest prices possible, and a system is provided whereby any owner can have his woodlot put under modern management immediately without using his own capital.

By these means, and by others, some of which are still in the planning stage, the New England Forestry Foundation is proceeding to develop its plan to bring modern forest management to private owners while at the same time it increases wood production in New England.

### Flying Forester

(From page 24)

they set, and for which they went to jail, destroyed scores of homes before it was controlled.

When large forest fires do break out the airplane really proves its worth.

The first job is reconnaissance. Fire bosses must know where the fire is spreading, what ridges will make safe firebreaks, what canyons can be effectively backfired. Often the Fire Boss himself will make the first reconnaissance, flying as an observer. Later he'll keep specially trained observers in the air all the time, radioing back word on each new development in the battle. Some air observers now carry a polaroid camera that can take a picture and deliver a finished print in 60 seconds. The print, dropped to the air staff officer at the main fire camp, makes planning strategy simple and fast.

Cargo dropping is the next big job of Cal's fire-fighting aircraft. The California Forest Service maintains special air sections at its fire caches at Redding and San Bernardino. Here complete equipment for fire camps up to 50 men is already packed and rigged to parachutes long in advance of fire season.

Paul Stathem, then supervisor on the Sequoia National Forest, recalls the Boone Pasture fire when he issued emergency orders for equipment, and planes delivered the tools right on the fire line in an hour and a half—over terrain where a pack train of mules would have taken a day and a half to do the same job.

Ferris has spent many hours train-

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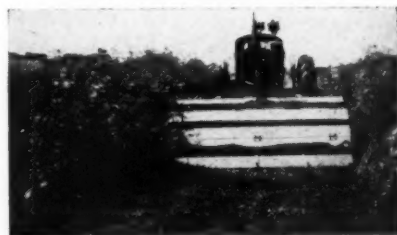
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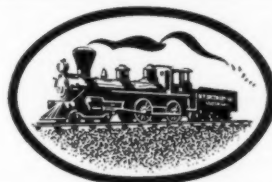
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ing the emergency pilots and their cargo droppers, and their accuracy is uncanny. Each run must be dangerously close to the smoke and updrafts of the fire. The pilot circles once to get his bearings, lowers to as little as 50 feet on his final approach, and at exactly the right moment signals "Now!" to the dropper braced in the open cargo hatch of the plane. Cal likes to recall the drop on one fire camp when a load of pots and pans floated down square on the roof of the cook tent. Another time baled hay for the pack mules was free-falled smack in the middle of the animals' corral. The mules merely twisted their necks to one side and began munching on the new-fallen manna.

Dramatic as the scourge of fire may be, other forest enemies are as predatory. Among the most dangerous is a disease called white pine blister rust that has ruined hundreds of millions of dollars of timber trees in the past 50 years. Scientists know that the disease is spread to pines by the spores of a fungus that lives most of the year on the leaves of wild currants and gooseberries, known as ribes. And for years thousands of men have laboriously been grubbing out the ribes plants that flourish near stands of pines. Cal's unit now sprays poisons from low-level aircraft on widespread ribes growths, killing the fungus-bearing host plants and clearing the land for later replanting to valuable grasses or trees.

In another series of forays against disease, Cal has cruised for hours over the timber country, spotting insect-infested pine trees whose flame-colored needles stand out sharply against the surrounding green of the healthy trees. On these low-level missions the locations of the sick trees are pin-pointed on maps; foresters can then move in and fell them before the bugs have a chance to spread. This sort of preventive surgery is vitally important, for the western pine beetle alone destroys more than \$15,000,000 worth of timber a year.

Ferris' air projects are often tailor-made for the wildlife managers of the Forest Service. On the Modoc Forest, for example, where some 35,000 deer and 2500 antelope range across the boundaries from California to Oregon to Nevada, Cal has played aerial cowboy. He'll flush the wild beasts into the open, swoop down to herd them across the meadows, and follow them closely while trained observers in the cockpit take

a count that's more accurate and far faster than the old laborious process of trail stalking on foot or horseback. And when the snows of winter cover the meadows, salt blocks and fodder tumble out of cargo planes to save the herds' lives.

A different sort of wildlife mission is the stocking of remote mountain lakes with trout fingerlings. Many of these lakes are hemmed in on three sides by high peaks, and there's no room for low-level approaches. To lick that problem the fingerlings are poured into a deep-freeze, and a 50-pound block of ice is frozen around the fish-filled liquid core. Then, from a safer altitude, Ferris parachutes the ice cake into the lake. The ice melts, the fish swim free, and another lake is stocked with trout.

Cal has carried even stranger—and undoubtedly more bewildered—cargo than fish. Consider the beavers. Beavers build excellent dams. And dams are vital to watershed protection. The Forest Service is quite capable of building its own dams, but small mountain streams often lie in canyons difficult to reach. To a flying forester the answer is obvious. Into a cage with quick-opening sides go a brace of beavers, male and female. The cage is hooked to a ten-foot parachute, and the whole contraption goes aloft. Over the target area the beavers are given a final pat good-bye, and a quick shove. The static line jerks taut, and in a moment the beavers are floating calmly to earth.

"Last time I checked," smiles Cal, "those beavers were doing just what they're supposed to do. Building dams—and saving the Forest Service time and money."

Many of the techniques he has learned and developed are spreading beyond the National Forests to other countries. He has spent long hours in technical discussion with foresters from India, Africa, England, Indonesia, Italy, South America and Australia.

Cal is convinced his air unit is only beginning to do its potential job for forestry. He looks for the day when every district ranger on every National Forest will be assigned a plane or helicopter permanently; when America's magnificent heritage of mountain, timberland and range is protected and wisely managed by a whole air force of flying foresters.

"When that time comes," he says, "I'll climb down out of the sky for good. It'll be nice, some day, to look at the trees from down below again."

## Your Shade Trees

(From page 21)

Does the representative appeal to you as a man who knows and loves trees and whose word is locally respected? Has he had basic training and experience, or is he simply a salesman who knows a little about trees and who is trying to make a living out of that meager knowledge.

Does he represent a reputable organization or is he a "fly-by-night"?

Is he willing to give you cost estimates to include maintenance and replacement services on the work performed?

Do his recommendations call for the greatest care to the greatest number of your trees, or does he recommend expensive work on individual trees of questionable merit? And last, but not least, will the trees warrant the expenditure called for from a standpoint of permanent value or longevity of the trees?

When considering tree preservative work, it is important to remember that preventive measures are

equally if not more important than corrective ones. Among the recommendations which might be made to you, and which are often justified, might appear the following types of service. By no means do all trees need all of these ministrations, but many do need some attention and need it badly:

Fertilization—for trees showing signs of malnutrition; bracing—to support weak limbs and crotches; spraying—when insects or leaf diseases infest or threaten your trees; pruning—to remove dead wood or shape the trees; lightning protection—for valuable large trees; root treatment—for trees suffering from girdling roots, root rots, compaction or gas injury; wound treatment—if the expense is warranted by the value of the tree. Other types of treatment may be indicated by local symptoms and no general rules can be given for such cases due to their wide variation.

## How Long?

How long does it take to grow a tree to sawlog size? In fast-growing timber regions like Lincoln County, Oregon, where our Tree Farms are located, trees grow remarkably fast. In 80 to 100 years trees in our region reach sawlog size.

For some purposes trees can be harvested after 30 and 40 years, for pulp, poles and piling and other similar uses.

Most important thing to remember is that trees are our only renewable natural resource. Unlike minerals and oils, when once gone, trees will grow again, when properly protected.

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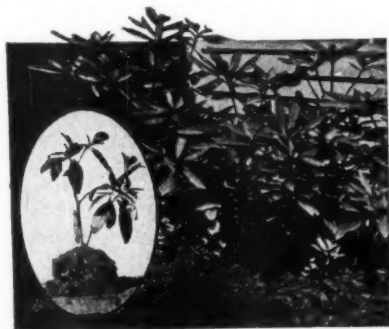


Photo: Rhododendrons planted 3 years.  
Inserts: Kalmia, on arrival.

## RHODODENDRONS

LOW AS **37½¢**

(See prices at right)

Fine Young Plants, 12-in. High. Slender now, will grow bushy. Small Ball of earth. Pay express (about 8c a plant) on arrival.

	(100)
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KALMIA (Mtn. Laurel), pink-white in June	\$42.00

5 each  
as at left  
20 plants  
\$14.50

25 each as  
at left  
100 plants  
\$48.50

### ALSO LARGER:

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## Bargains in Large Young Evergreens

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**10 for \$10.00**

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2-Yr. (fruit like-ly 1953) Any two: \$8.00 3-year olds, two for \$10.50



	(10)	(25)	(100)		(25)	(100)
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## Cracker Barrel

(From page 9)

Five-and-Ten Cent stores, chain drug stores as well as independent drug and grocery stores. And, of course, nearly all leading paint, hardware stores and lumber supply dealers were natural retailers.

Today it is estimated that more than 95 percent of the gum turpentine crop is being sold in small packages. "This makes us very happy," says the Judge. "It proves over and over that magazine and newspaper advertising really pays."

The annually sponsored AT-FA conservation program is another of its major accomplishments. It is doing a fine job of teaching outstanding lessons in conserving timber, selective cutting, and all-around good forestry practices. Unlike the dirt farmer's, the gum farmer's spring plowing is not for the purpose of tilling the soil. He plows fire lines to protect his forests from the bugaboo of all timber . . . forest fires.

The only seeds the gum farmer has to plant are pine seedlings when he wishes to reforest and reclaim idle, once cultivated or eroded acres. Nature sees to most of his re-seeding problems, but protection of these young trees is an absolute necessity.

During the years 1936-49 inclusive, \$11,295,814 have been paid to Naval Stores Producers for compliance with the provision of the Naval Stores Conservation Program which is administered by the U. S. Forest Service.

Collaborating with the Commodity Credit Corporation of the U. S. Department of Agriculture, the Association has obtained millions in loans for its members. The AT-FA further serves as the CCC's field agents. It is proud of the fact that this is one agricultural program which has actually showed a profit for the government.

Cooperating with leaders of 4-H Clubs and Future Farmers of America chapters, as well as with agricultural educators, the Association has run up a most impressive score. It has sponsored three sound and color educational motion pictures, home improvement and painting contests, naval stores and forestry camps, furnished paint instructional units to agricultural schools and colleges, printed bulletins and provided other student aids.

(Turn to page 47)

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## NEWS IN REVIEW

**AFA Staff Changes**—The American Forestry Association announces with regret the resignation during August of two staff members, James P. McWilliams and Donald S. Farver. Mr. McWilliams, who has served in various AFA capacities since January, 1946, has assumed duties as forest economist with the lumber division of the National Production Authority. Mr. Farver, business manager for the Association since March, 1950, has accepted the position of comptroller for Group Hospitalization, Inc., Washington, D. C.

Robert S. Spencer, assistant to Farver since August, 1950, has taken over duties of business manager. McWilliams' position will be filled shortly.

During his five and a half years with AFA McWilliams served first as head of membership promotion and technical services and since 1949 has disseminated conservation information to AFA members. He also has contributed numerous reviews of books, bulletins, reports and pamphlets to *American Forests* and in recent months served as technical adviser for the magazine.

Graduating from the school of forestry, Pennsylvania State College, in 1930, McWilliams began his professional career that year in Maryland as assistant district forester. In 1934 he was named forester, and later camp superintendent, for the Civilian Conservation Corps operating on western Maryland state forests. From 1942 to 1944 he worked as inspector of military construction for a private contracting firm and the U. S. Army Engineers. The two years prior to joining AFA he worked as forest economist for the lumber division of the War Production Board.

Before joining AFA, Farver was for three and a half years auditor and cost accountant for the National Association of Broadcasters. Previously he was junior accountant with Frazier and Torbet, CPA firm in Washington, and was employed for four years by the Potomac Electric Power Company as junior representative in the sales and promotion department.

Farver served in the Army five years, rose from private to major, and commanded a battalion in the European theatre. Currently he holds a lieutenant colonel's commission in the Air Force Reserve. He is a graduate of the University of Virginia.

**Forest Fire Figures**—A total of 208,402 fires burned 15,518,419 acres of forest land in the United States during 1950, according to figures released by the U. S. Department of Agriculture. Of the area burned, an estimated 11,720,000 acres, or 76 percent, was on privately owned forests having no organized fire protection.

**Record Pulp Sale**—The largest sale of National Forest timber in history was completed recently by the U. S. Forest Service in awarding a final contract for one and one-half billion cubic feet of Alaskan pulp timber to Ketchikan Pulp and Paper Company, Bellingham, Washington. The timber, sufficient to supply a pulp mill of 500-ton daily capacity for 50 years, is located on the Tongass National Forest in southeastern Alaska.

Award of the sale means the establishment of a new and permanent industry in Alaska based on harvesting the timber under scientific forest management, according to Lyle F. Watts, Forest Service chief. Site for the mill is Ward Cove, near Ketchikan.

**Foresters in the News**—Paul W. Schoen, for the past six years executive secretary of the Forest Farmers Association, with headquarters in Valdosta, Georgia, assumed new duties September 1 as Washington representative of the American Paper and Pulp Association and the American Pulpwood Association.

James H. Diehl has been named chief of the division of cooperative forest protection, U. S. Forest Service. For the past four years Diehl has represented the Forest Service in all state and private forestry work in ten midwestern states. In his new position he will head up Forest Service participation in the state-federal cooperative program to protect state and privately owned forests against fire.

Diehl replaces Earl S. Peirce, who with Harry Irion, administrative officer of USFS program planning, retired recently with a combined service record of 80 years with the federal government. Irion entered the Forest Service in 1908, Peirce in 1910.

William H. Meyer, formerly of the U. S. Soil Conservation Service, has been appointed executive director of



the Vermont Forest and Farmland Foundation, Incorporated, according to George W. Merck, Foundation president.

**Florida Key Deer**—Only disagreement among local interests in Florida regarding the extent of an island area proposed as a federal sanctuary for the disappearing Key deer is holding up Congressional action on a bill for protection of this unique wildlife species, according to Carl D. Shoemaker, conservation director of the National Wildlife Federation. He reports a compromise bill has been drafted designed to meet the local objections while still providing the necessary protection.

### Cracker Barrel

(From page 45)

A mechanization program has been under way for several years under U. S. Forest Service direction, as a result of Association urging, and from it will most certainly come new and improved tools for the industry.

"There's still much to be done in our industry," the Judge will tell you, "But we are not hiding in the woods waiting for someone else to do it. We are at least looking ahead in this Naval Stores Industry the skeptics were ready to bury a few years ago."

### Forest Guards

(From page 20)

which include state, federal and local agencies; law enforcement; safety, health and first-aid; youth groups; and, of course, the high school groups.

Joe S. De Young has seen this organization prove its value, for, when it was impossible for local Fire Wardens to get adult workers these trained youth crews willingly offered their services.

"Too much credit cannot be given to the principals and parents who permitted the high school crews to offer their assistance," he adds. "Future generations of Hoosiers will benefit immeasurably by the work being carried on by the Volunteer Forest Fire Fighter Guards today. Were it not for the splendid cooperation we have received from high school principals and students' parents, this story would not have been a success, for they were the ones responsible for their youngsters receiving this training and joining the Hoosier fire fighting team which continues to pay off in community and state dividends."

# PACIFIC PUMPERS

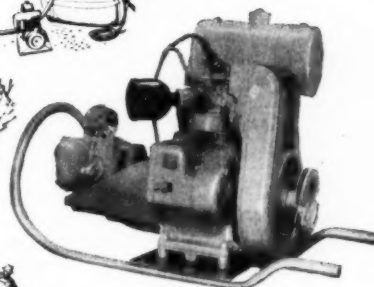
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Combining the state Society's 50th Anniversary observance and The American Forestry Association's 76th Annual Meeting, the convention will feature discussions on forestry and resources together with several interesting and instructive field trips. The annual banquet will be held October 8.

Headquarters will be at the WAUMBEEK HOTEL, where a special rate of \$12 per day, American plan, has been provided. The Waumbek adjoins White Mountain National Forest and is conveniently near the scenic Notches of Franconia, Crawford, Pinkham and Dixville. You will enjoy breath-taking views in Fall colors of Mounts Washington, Jefferson, Adams, Madison and other giants of the towering Presidential Range.

Make your reservations today by writing to: K. P. Kenyon, The Waumbek, Jefferson, New Hampshire. If preferred, other nearby accommodations, American or European plan, may be arranged through Mr. Kenyon.

THE AMERICAN FORESTRY ASSOCIATION

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# Editorial

## NO POLITICKING, PLEASE!

By this time, the floodwaters of late July have receded in the Missouri River Basin. The emergency disaster relief phase, too, is pretty much a thing of the past, its purpose accomplished so far as ministering to the immediate needs of food, clothing and lodging for stricken people caught in the path of rising waters. The task of rehabilitation—getting life back to normal—is still going on, however. For those who felt the full impact of this catastrophe, a return to “business as usual” may never be possible.

All these facets, and more, will be treated at length by Anthony Netboy and Bernard Frank in a special feature article, *Rivers at Our Door*, scheduled for publication in our forthcoming October issue. G. H. Collingwood also treats the subject in this month's *Washington Lookout* (page 4). These comments, therefore, will be confined to a warning note, an expression of apprehension lest a handful of politicians attempt in their pork barrel way to legislate a plan of future flood-control without full study and consideration of all the proposed plans.

We who have been pummeled so thoroughly in the region of the hip pocket by (for the sake of argument) well-meaning lawmakers bent on doing what's best for us, even if it kills us, have reason to shudder at what our elected representatives can do in the guise of a helping hand. Upward of 20 billion dollars is one of the astronomical figures bandied about as probable cost of the Pick-Sloan Plan for building big dams and reservoirs. This is 25 percent underway. Agriculture has a supporting plan—still on paper—with a price tag of eight and a half billion. There's also a Missouri Valley Authority Plan, price unknown.

Admittedly, the price we'll have to pay for flood-control and auxiliary benefits must be necessarily high, nor will any reasonably worthwhile plan be completed overnight. Whatever the plan, it must be broad enough in scope to protect both natural and man-made resources basin-wide. There won't be room for pet piece-meal political tangents in any plan worthy of consideration.

Bickering along party lines has cropped out anew, what with the President scoring the House for its 20 percent cut of flood-control appropriations at the time of asking the Senate to vote a special \$21,800,000 fund for use in the stricken midwest area. That bit of chiding was probably more constructive, however, than a previous utterance in which he tossed the ball back to the voters by ask-

ing them to elect more “forward-looking, liberal minded members of Congress” if they wished a Missouri Valley Authority type of flood-control.

We can hope the Republican members of the joint subcommittee on public works, now hard at work seeking a solution to this complex problem, were sincere in their rebuttal: “We assert this is not the time nor place to mix politics with human misery. We reaffirm our determination to work with our colleagues of both political parties to insure that such disasters as this do not happen again.”

So long as the legislators waste their time thusly, it might be well to remind them of the famous quote usually attributed to a renowned Missourian of yesteryear, Mark Twain: “Everybody talks about the weather, but nobody does anything about it.”

There are instances, however, of people working together who have done something about the weather, i.e. flood-control. The Muskingum Watershed Conservancy District in Ohio set about to conquer the same sort of problem 22 years ago, and its success is a monument to mankind. The American Forestry Association has been sounding the praises of this work for years, even has a pamphlet telling *The Muskingum Story*.

In other widely scattered areas of this nation are several more examples which Missouri Valley planners will wish to investigate. There is the Washita River Valley in Oklahoma which is being tamed by a combination of braking each floodlet as it hits the ground and applying further checks through terracing, contour farming and detention reservoirs. Sandstone Creek, southeast of Cheyenne, Wyoming has benefited by similar treatment in the past couple of years, and so has Barnitz Creek, near Clinton, Iowa. Only modest dams of a size to make Army engineers sneer have been found necessary on any of these undertakings.

Secretary of Agriculture Charles F. Brannan offered essentially the same sort of philosophy in a speech before the Missouri Farmers' Association in Columbia, Missouri on August 6. We can't help but feel there is a common meeting ground to this entire flood-control problem which lies somewhat closer to the topsoil than most of the engineers would admit. Runoff must be controlled at the source rather than on the doorsteps of citizens hundreds of miles away. Let us not be like the child who grabs the brightest colored bauble dangled before him.

# TITAN

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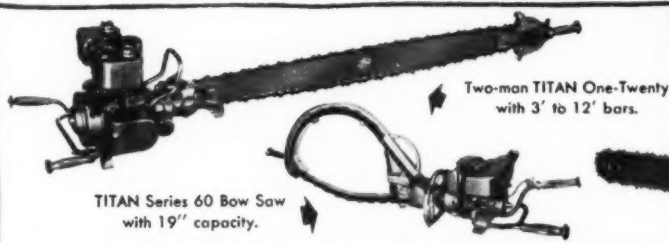
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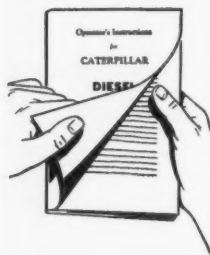
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